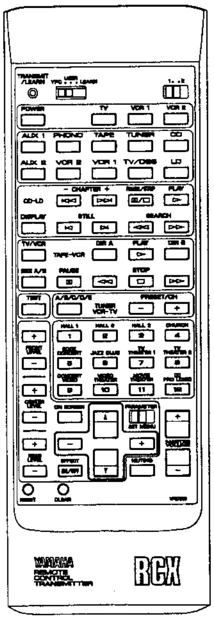
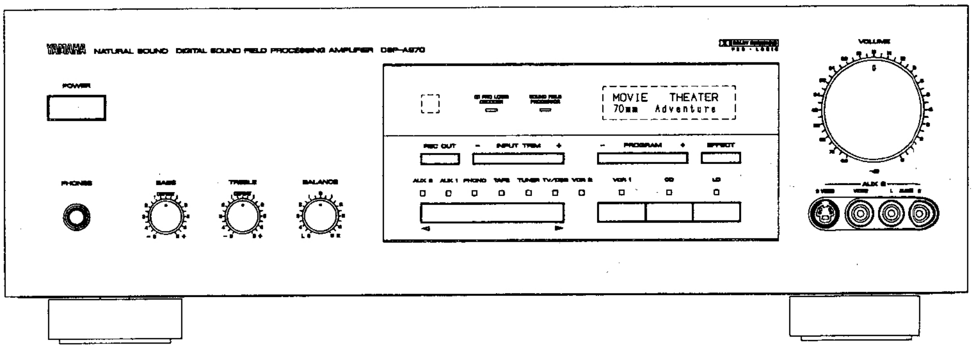
DIGITAL SOUND FIELD PROCESSING AMPLIFIER

DSP-A970

SERVICE MANUAL





IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel. It has been assumed that basic service procedures inherant to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that all service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

■ CONTENTS

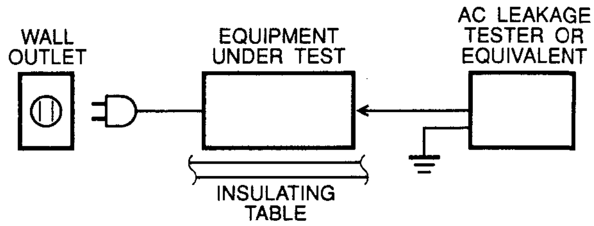
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YAMAHA
YAMAHA CORPORATION
P.O.Box1,Hamamatsu,Japan
3.0K-293 Printed in Japan '93.7

■ TO SERVICE PERSONNEL

1. Critical Components Information.
   Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Models Only).
   When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15μF.
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

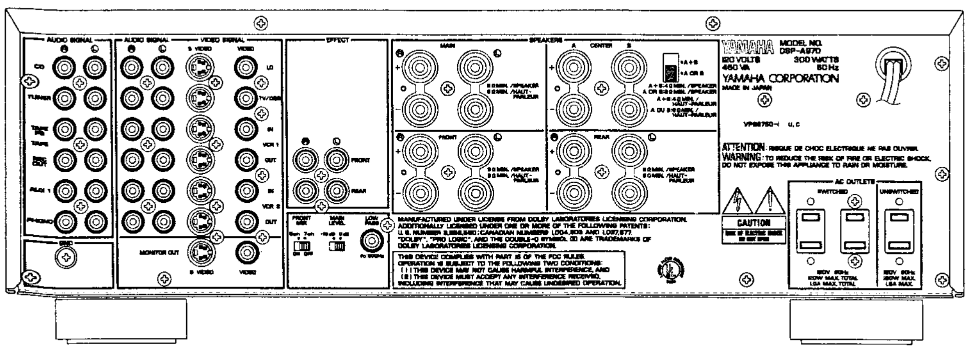
DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

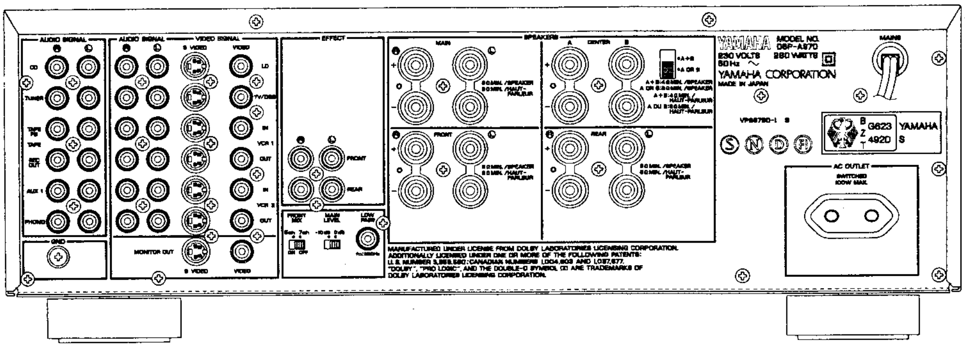
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ REAR PANELS

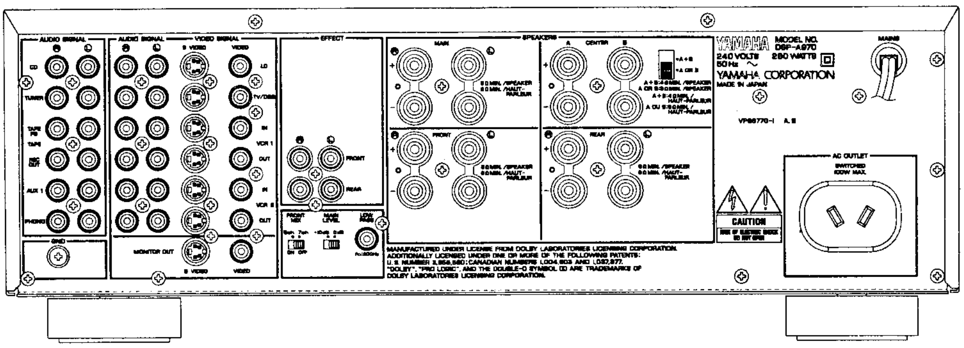
▼ USA & Canadian models



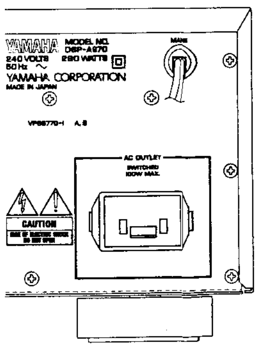
▼ European model



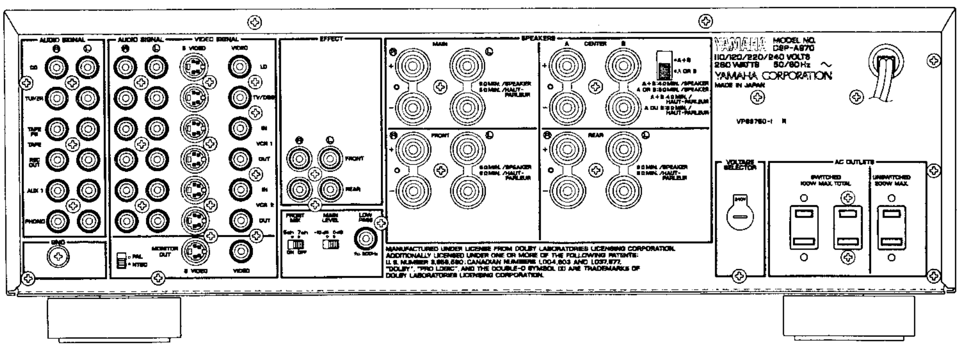
▼ Australian & British models



British model only



▼ General model



■ SPECIFICATIONS

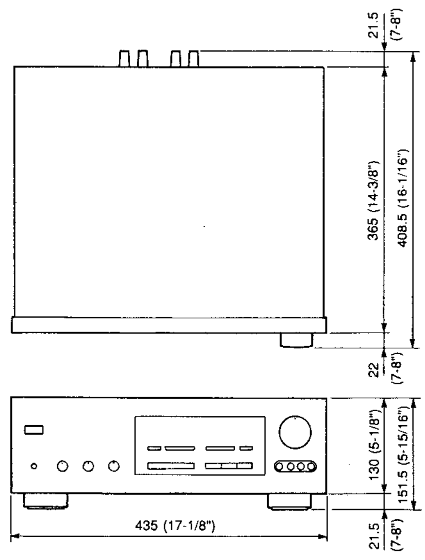
Item	Value
Minimum RMS Output Power Per Channel	
Main, Center (20Hz—20kHz 0.015% THD 8Ω/6Ω)	
(U, C models)	65W/80W
(R, A, B, G models)	60W/75W
Front, Rear Effect (20Hz—20kHz 0.03% THD 8Ω/6Ω)	22W/25W
Dynamic Power Per Channel (U, C models)	
(by IHF Dynamic Headroom Measuring Method)	
Main (8Ω/6Ω/4Ω)	85W/105W/130W
DIN Standard Output Power Per Channel (G model)	
Main (1kHz 0.7% THD 4Ω)	105W
Dynamic Headroom (U, C models)	
Main (8Ω/6Ω)	1.2dB/1.2dB
IEC Power (G model)	
Main (1kHz 0.015% THD 8Ω/6Ω)	65W/80W
Damping Factor	
Main, Center (1kHz 8Ω)	100
Input Sensitivity/Impedance	
Phono MM	2.5mV/47kΩ
CD etc	150mV/47kΩ
Maximum Input Signal (1kHz)	
Phono MM (0.01% THD)	130mV
CD etc (EFFECT ON 0.5% THD)	2.3V
Output Level/Impedance	
REC OUT (PHONO)	150mV/1kΩ
PRE OUT (FRONT L, R, REAR L, R)	1V/1.2kΩ
PRE OUT (LOW PASS)	4.0V/3.3kΩ
Headphone Jack Rated Output/Impedance	
Input 50mV RL=8Ω	0.19V
Impedance	100Ω
Frequency Response (20Hz—20kHz)	
CD etc	0±1.0dB
RIAA Equalization Deviation (20Hz—20kHz)	
Phono MM	0±0.5dB
Total Harmonic Distortion (20Hz—20kHz)	
Phono MM to REC OUT, 1V	0.01%
CD etc. to SP out (MAIN L, R) 35W/8Ω	0.02%
Signal-to-Noise Ratio (IHF-A Network)	
Phono MM (Input Shorted)	More than 86dB
CD etc (Input Shorted)	More than 96dB
Residual Noise (IHF-A Network)	
MAIN L, R SP out	150µV
Channel Separation (Vol –30dB)	
Phono MM Input shorted	
1kHz/10kHz	More than 65dB/50dB
CD etc Input 5.1kΩ Terminated	
1kHz/10kHz	More than 60dB/45dB
Tone Control Characteristics	
Bass Boost/Cut	±10dB (50Hz)
Bass Turnover frequency	350Hz
Treble Boost/Cut	±10dB (20kHz)
Treble Turnover frequency	3.5kHz
Filter Characteristics (LOW PASS)	
High cut Filter	fc=200Hz, 6dB/oct
Audio Muting	–20dB
Video	
Video Signal Type (U, C models)	NTSC
(A, B, G models)	PAL
(R model)	NTSC/PAL
Video Signal Level	1Vp-p75Ω
S-Video Signal Level Y	1Vp-p75Ω
C	0.286Vp-p75Ω
Maximum Input Level	More than 1.5Vp-p
S/N	50dB
Monitor Out Frequency response	5Hz—10MHz, –3dB
Power Supply	
U, C models	AC120V 60Hz
A, B models	AC240V 50Hz
G model	AC230V 50Hz
R model	AC110/120/220/240V 60/50Hz
Power Consumption	
U, C models	300W, 460VA
A, B, G, R models	280W
AC Outlets	
2 Switched Outlets	
(U, C models)	120W max. total
(R model)	100W max. total
1 Switched Outlets	
(A, B, G models)	100W max. total
1 Unswitched Outlets	
(U, C models)	180W max.
(R model)	200W max.
Dimensions (W x H x D)	435 x 151.5 x 408.5mm (17-1/8" x 5-15/16" x 16-1/16")
Weight	14.0kg (30 lbs. 13 oz)

**Specifications are subject to change without notice.*

U .... U. S. A. model
C .... Canadian model
B .... British model
A .... Australian model
G .... European model
R .... General model

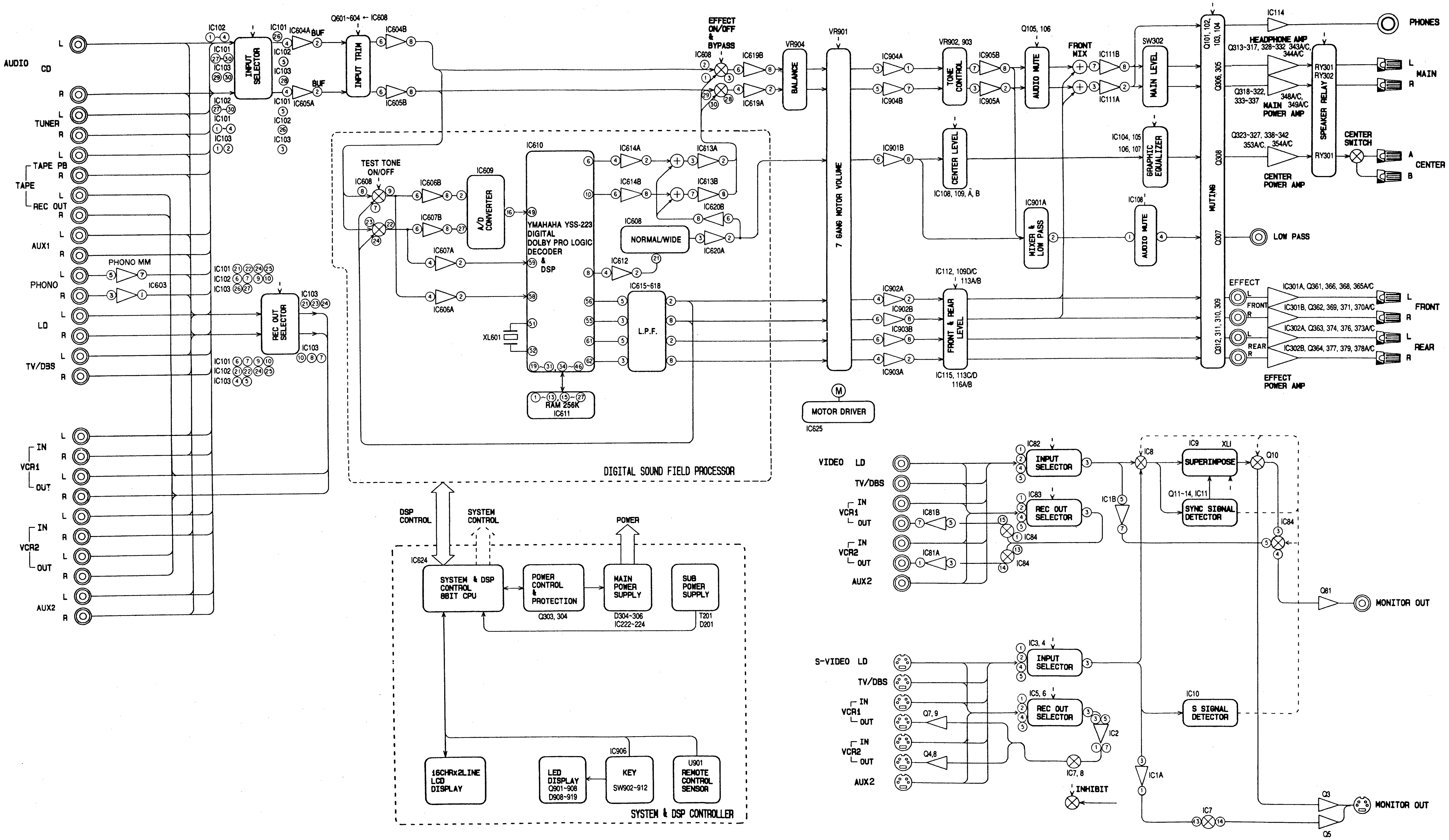
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● DIMENSIONS

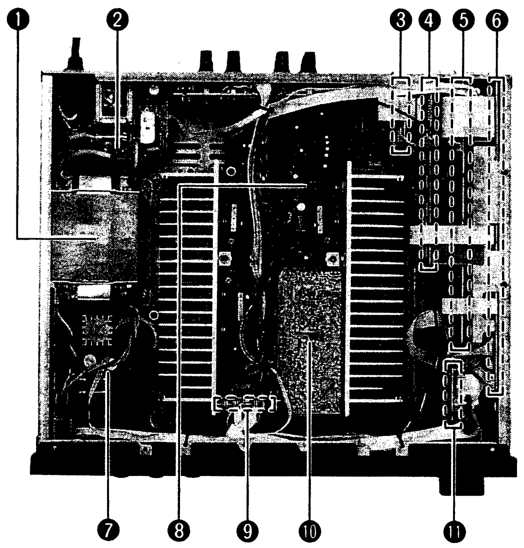


Unit : mm (inch)

■ BLOCK DIAGRAM



■ INTERNAL VIEW



❶ POWER TRANSFORMER
❷ FUNCTION P.C.B. ASS'Y (4)
❸ FUNCTION P.C.B. ASS'Y (3)
❹ FUNCTION P.C.B. ASS'Y (2)
❺ FUNCTION P.C.B. ASS'Y (1)
❻ DSP P.C.B. ASS'Y
❼ MAIN P.C.B. ASS'Y (5)
❽ MAIN P.C.B. ASS'Y (1)
❾ FUNCTION P.C.B. ASS'Y (5)
❿ MAIN P.C.B. ASS'Y (3)
⓫ OPERATION P.C.B. ASS'Y (3)

■ DISASSEMBLY PROCEDURES

(Remove parts in disassembly order as numbered.)

1. Removal of Top Cover

a. Remove 4 screws (①) and 2 screws (②) and then remove the Top Cover in Fig. 1.

2. Removal of Bottom Cover

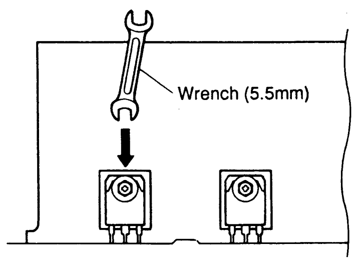
a. Remove 9 screws (③) and then remove the Bottom Cover in Fig. 1.

3. Removal of Front Panel

a. Remove 4 knobs in Fig. 1.
b. Remove 6 screws (④) and then the remove the Front Panel in Fig. 1. For this removal, also remove connectors (#4 to #6, #21, #23) as necessary.
(Refer to Fig. 3 Bottom Side Wire Connection Diagram.)

Removal of Power Transistor

a. Use a 5.5mm wrench or a small size adjustable wrench.
b. Using the above tool, remove the screw fixing the Power Transistor.



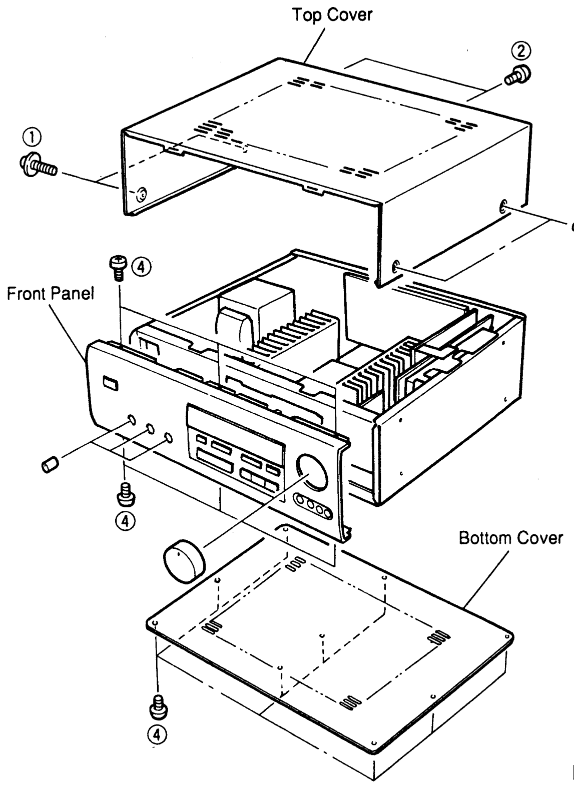


Fig. 1

4. Removal of DSP P.C.B.

a. Remove 8 screws (⑤) and 3 plastic rivets (⑥) in Fig. 2.
b. Remove the connector bands (#3, #7, #8) in Fig. 3.
c. Remove the connectors (#1, #15, #21 to #23) in Fig. 3.
d. Move the DSP P.C.B. toward the front and pull it up.

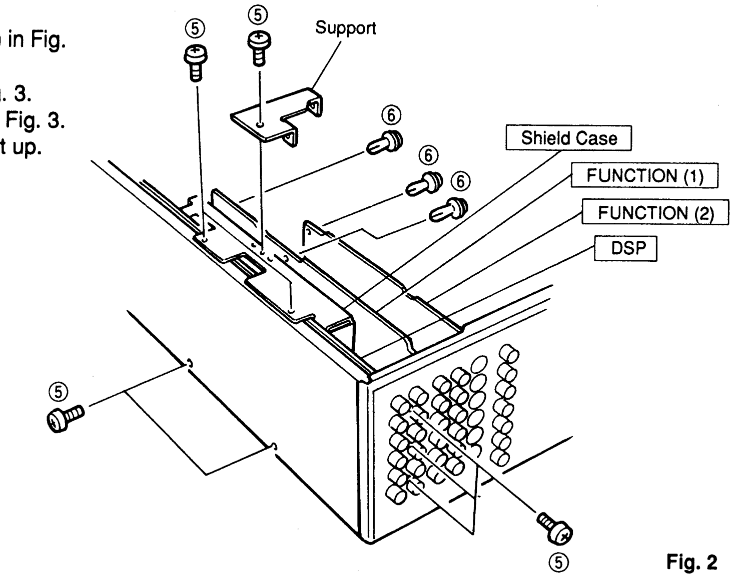


Fig. 2

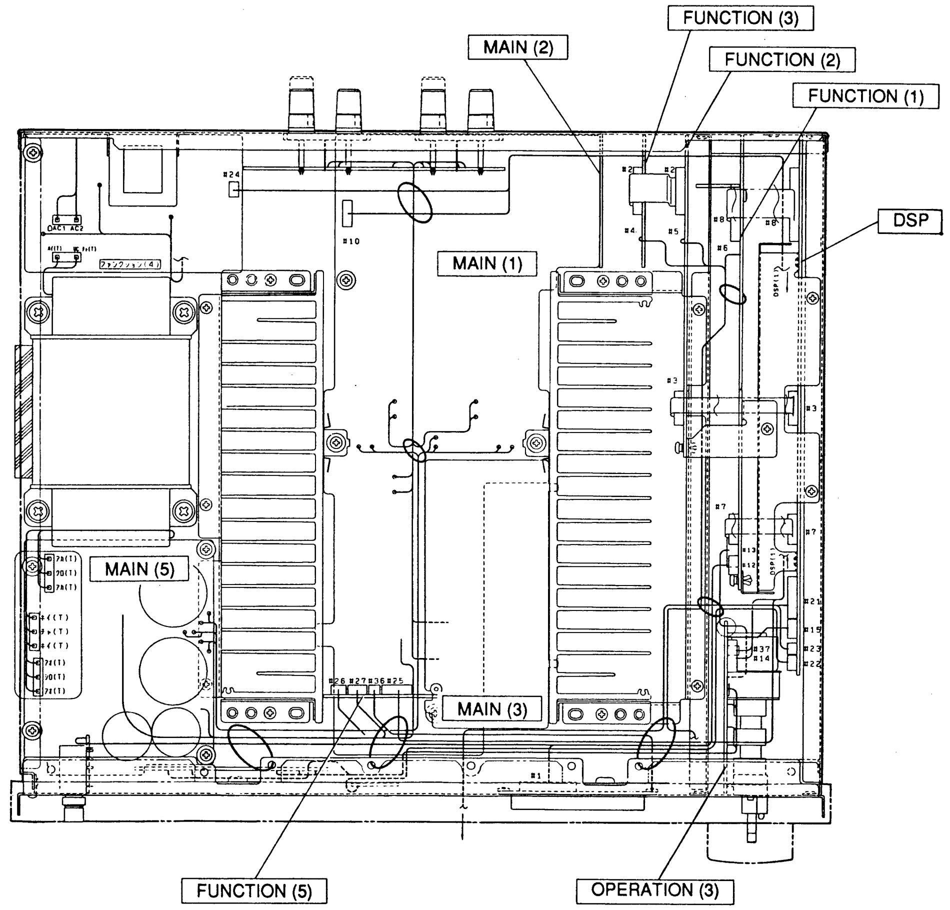


Fig. 3

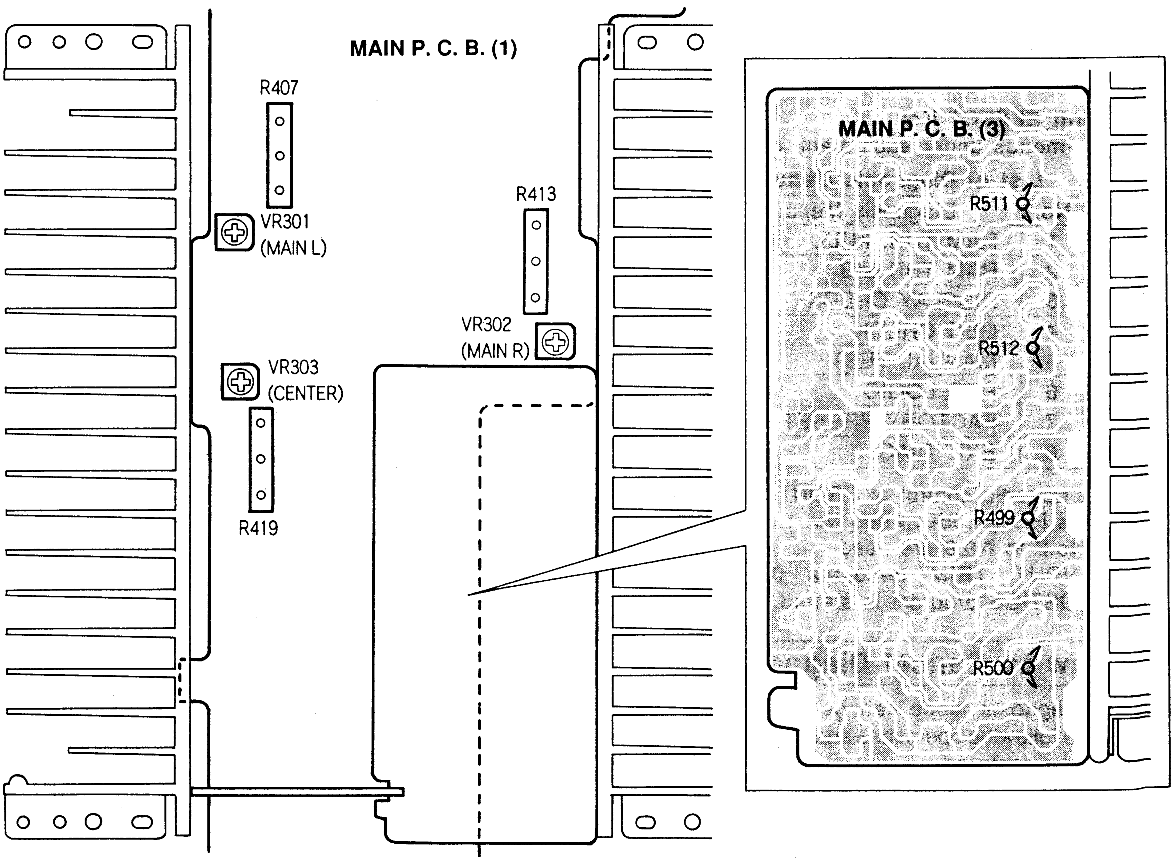
■ ADJUSTMENTS

● IDLING CURRENT ADJUSTMENT

Before this adjustment, wait for 10 minutes with no signal applied after the power is turned ON.

Item	Test Point	Adjustment point	Rating (DC)
MAIN L	Between terminals of R407, at the center and one end	VR301	2.5mV~5mV
MAIN R	Between terminals of R413, at the center and one end	VR302	
CENTER	Between terminals of R419, at the center and one end	VR303	2.5mV~5mV
FRONT L	Between terminals of R499 at both ends	—	100mV~300mV
FRONT R	Between terminals of R500, at both ends	—	
REAR L	Between terminals of R511, at both ends	—	100mV~300mV
REAR R	Between terminals of R512, at both ends	—	

● Test Point



■ DIAGNOSTICS MODE

The DSP-A970 is provided with a self-diagnosis program called "DIAGNOSTICS" mode which facilitates inspection and measurement. Described below are its operation procedure and diagnosis content.

1. How to Start Diagnosis

While pressing 2 keys "REC OUT" and "INPUT TRIM-" on the main panel of the DSP-A970 simultaneously, turn ON the power. This sets the unit in the "DIAGNOSTICS" mode and starts operation and then the following message appears on the LCD.

```
1.RAM THR.  FULL
 EXTERNAL  A/D
```

There are 8 menus (No.1 to No.8) in the 'DIAGNOSTICS" mode and each of them has some sub-menus. Selection of these menus and sub-menus can be made as follows.

- **Remote Control PROGRAM No.1 to No.8 Keys**
  Menus No.1 to No.8 can be selected directly. Also, pressing the same No. key a number of times will allow the sub-menu to be selected.
- **Main Unit PROGRAM +/- Key**
  The menu can be shifted up and down among No.1 to No.8.
- **Main Unit EFFECT Key**
  The sub-menus under each menu can be selected.

List of Diagnosis Menus

No.	Diagnosis Menu
1	RAM THR. FULL
2	RAM THR.0dB
3	DISPLAY CHECK
4	GEQ CHECK
5	MANUAL TEST
6	PRO LOGIC
7	FACTORY PRESET
8	EXIT DIAG.

*1 Each electronic control of FRONT/REAR/CENTER becomes Full (+10dB) when No. 1 is used and 0dB when No.2 to N0.8 are used.
*2 The INPUT TRIM becomes 0dB when the DIAGNOSTICS program is started.

2. How to Cancel Diagnosis

The self-diagnosis mode can be cancelled by using either of the following operations and the normal operation mode will be restored.

- Turn OFF the power.
- Execute Diag. Menu No.8 "EXIT DIAG.".

When initializing the RAM, select Diag. Menu no.7 "FACTORY PRESET" and in the "RESERVED" state, cancel the diagnostics mode.

3. Content of Diagnosis

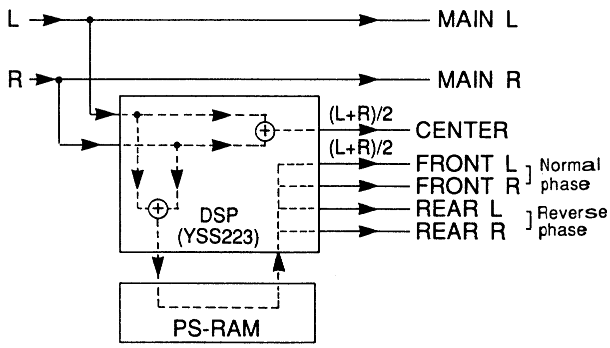
No.1 RAM THR. FULL

DSP RAM THROUGH
—Signals of each channel are processed as follows.

MAIN L/R : Output provided by bypassing the DSP-LSI.
CENTER : Output provided after (L + R) divided by 2 in the DSP.
FRONT/REAR : Output provided in the normal phase for FRONT and in the reverse phase for REAR after (L + R) divided by 2 in the DSP and through the PS-RAM

Also, each electronic control of FRONT/REAR/CENTER becomes Full (+10dB).
In addition, the A/D converter to use can be switched by using a sub-menu.

EXTERNAL A/D : A/D (IC604) attached outside is used.
INTERNAL A/D : A/D built in the DSP-LSI is used.



DSP RAM THROUGH SIGNAL PATH DIAGRAM

No.2 - RAM THR.0dB

The same as No.1 except that the electronic control is set to 0dB.

No.3 - DISPLAY CHECK

Segment check of the LED and LCD.
On the LED,

PRO LOGIC DECORDER → SOUND FIELD PROCESSOR → AUX3 → ··· → CD → LD

light in that order at about 0.5 seconds intervals and finally all segments in the LED and LCD light.

No.4 - GEQ CHECK

Function to check the Center Graphic Equalizer easily. According to the sub-menu selection, the graphic equalizer setting changes in the order of :

ALL FLAT → 100Hz+6dB → 300Hz+6dB
↑ ↓
10kHz+6dB ← 3kHz+6dB ← 1kHz+6dB

— No.5 - MANUAL TEST

Test noise output mode by manual operation.
According to the sub-menu selection the test noise output changes in the order of :

MAIN L → CENTER → MAIN R
↑ FRONT ← SURROUND ←

Use of the AUDIO MUTE will set the level of each channel to -20dB.

— No.6 - PRO LOGIC

DOLBY PRO LOGIC in the state of AUTO INPUT BALANCE OFF.
By using sub-menus, EFFECT OFF (BYPASS), CENTER MODE NORMAL/WIDE/PHANTOM can be selected.

— No.7 - FACTORY PRESET

Initialization of each memory is selected by using the sub-menu.

RESERVED : Initialization of the memory is executed after the diagnosis has been done.
INHIBIT : Initialization of the memory is inhibited. Parameters, Electronic VOL, GEQ and Center mode settings are restored as they were before starting diagnosis.

— No.8 - DIAG. EXIT

When the "EFFECT" key is pressed, the self-diagnosis mode will be cancelled and the mode will be set back to the normal operation mode.

■ PROTECTION FUNCTION

The protection function is activated and the power turns OFF when :

1. **DC occurs in the output of any power amplifier channel.**
2. **An abnormal current flows to any power amplifier due to such a reason as a short circuit in the speaker**
3. **±15V is abnormal**
4. **±5V is abnormal**
5. **±B is abnormal**

Also, there are cases when the power is turned OFF due to an error in detecting the above conditions or abnormality in the protection circuit itself.

The protection circuit consists of a microcomputer (IC624), Q607, 608 and a peripheral diode.

The function of each element is as follows.

a) **Q607, 608 :** Detecting abnormality and sending that signal to the microcomputer (IC624)

b) **PRT (7) terminal of microcomputer (IC624)**
: Input terminal of the signal from Q607, 608

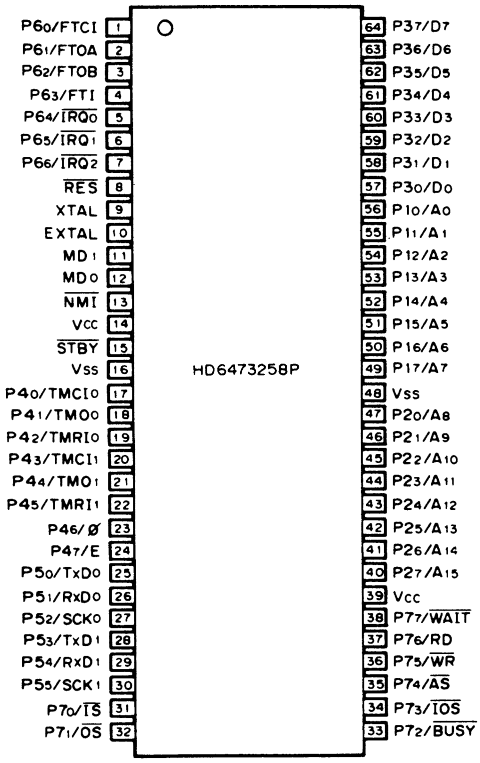
c) **PWR (42) terminal of microcomputer (IC624)**
: Output terminal for the signal to the power ON/OFF relay

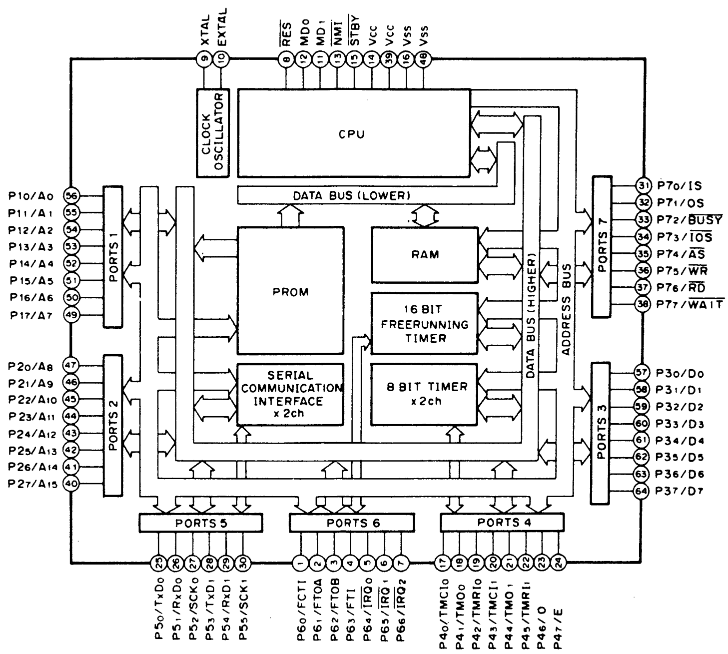
d) **SRY (22) terminal of microcomputer (IC624)**
: Output terminal for the ON/OFF signal to the speaker protection relay

The microcomputer and interface does not detect abnormality for 3 or 4 seconds after the power is turned ON. During this time, abnormality can be located by checking the above listed conditions 1 to 5. Before this check, however, make sure to check that there or is no danger or smoke.

■ IC DATA

IC624 : HD6473258P10
8 bit μ-COM





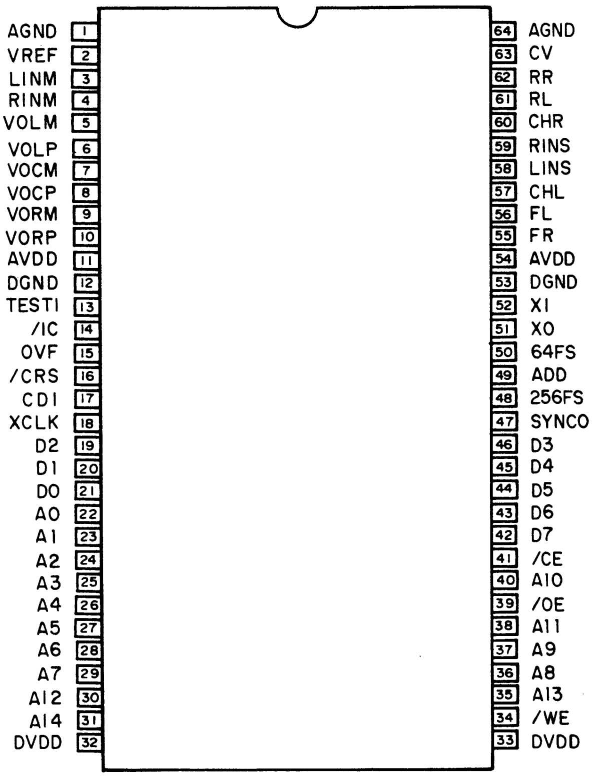
No.	Name	Function	POWER ON	POWER OFF	BUCK UP
1	P60-$\overline{\text{INH2}}$	V-REC 2 inhibit (VCR 2)	O	OL	→
2	P61-$\overline{\text{INH1}}$	V-REC 1 inhibit (VCR 1)	O	OL	→
3	P62-$\overline{\text{IE}}$	INT/EXT detect	I (pu)	I	I
4	P63-ADR	AK5339 RESET	O	OL	→
5	P64-$\overline{\text{REM}}$	Remote control input interrupt	I	→	→
6	P65-$\overline{\text{PDET}}$	Power detect interrupt	I	→	→
7	P66-PRTC	Protection detect	I	→	→
8	$\overline{\text{RES}}$	RESET			
9	XTAL	20MHz			
10	EXTAL	OSC			
11	MD1	H			
12	MD0	H			
13	$\overline{\text{NMI}}$	H			
14	VCC	+5V			
15	$\overline{\text{SYBY}}$	H			

Note) In the above table, — means negative logic and (pu) the internal pulled-up state.

No.	Name	Function	POWER ON	POWER OFF	BUCK UP
16	VSS	GND			
17	P40-$\overline{\text{P}}$/N	PAL/NTSC detect	I (pu)	→	I
18	P41-CLKG	GEQ clock	O	OL	→
19	P42-TXDG	GEQ data	O	OL	→
20	P43-CE0	GEC, DSP	O	OL	→
21	P44-CE1	CE	O	OL	→
22	P45-SPR	Speaker relay	O	OL	→
23	P46-$\overline{\text{FMX}}$	FRONT MIX	I (pu)	→	I
24	P47-$\overline{\text{FMT}}$	FULL MUTE	O	OL	→
25	P50-TXD0	Serial data	O	OL	→
26	P51-CESI	On screen CE	O	OL	→
27	P52-SCK0	Serial clock		OL	→
28	P53-TXD1	DSP serial data	O	OL	→
29	P54-$\overline{\text{CRS}}$	DSP reset	O	OL	→
30	P55-SCK1	DSP serial clock		OL	→
31	P70-LCD0	VCD DATA 0	O	OL	→
32	P71-LCD1	VCD DATA 1	O	OL	→
33	P72-LCD2	VCD DATA 2	O	OL	→
34	P73-LCD3	VCD DATA 3	O	OL	→
35	P74-LCD4	VCD DATA 4	O	OL	→
36	P75-LCD5	VCD DATA 5	O	OL	→
37	P76-LCD6	VCD DATA 6	O	OL	→
38	P77-LCD7	VCD DATA 7	O	OL	→
39	VCC	+5V			
40	P27-CEL	LCD CE	O	OL	→
41	P26-RS	LCD RS	O	OL	→
42	P25-PWR	Power relay	OH	OL	→
43	P24-VLD	VOLUME DOWN	O	OL	→
44	P23-VLU	VOLUME UP	O	OL	→
45	P22-$\overline{\text{IND}}$	VOLUME LED	O	I	→
46	P21-$\overline{\text{STBY}}$	STANDBY LED	OH	O	→
47	P20-$\overline{\text{PWR}}$	Power relay reverse	OL	I	→
48	VSS	GND			
49	P17-K2	KEY 2 (unused)	I	→	→
50	P16-K1	KEY 1	I	→	→
51	P15-K0	KEY 0	I	→	→
52	P14-LED1	LED 1	O	OL	→
53	P13-LED0	LED 0	O	OL	→
54	P12-D2	DIGIT 2	O	OL	→
55	P11-D1	DIGIT 1	O	OL	→
56	P10-D0	DIGIT 0	O	OL	→
57	P30-VER0	Specifications 0 (H : G, R)	I (pu)	→	I
58	P31-VER1	Specifications 1 (H : U, R)	I (pu)	→	I
59	P32-PSW	POWER SW	I	→	→
60	P33-$\overline{\text{HMT}}$	Headphone MUTE	O	OL	→
61	P34-$\overline{\text{HDET}}$	Headphone detect	I (pu)	→	I
62	P35-VSL C	VIDEO C	O	OL	→
63	P36-VSL B	VIDEO B	O	OL	→
64	P37-VSL A	VIDEO A	O	OL	→

Note) In the above table, — means negative logic and (pu) the internal pulled-up state.

IC610 : YSS223-K
Digital Dolby Pro Logic Decoder with Auto Input Balance



Pin No.	Pin Name	I/O	Function
1	AGND	A—	Ground (Analog section)
2	VREF	AI	Multiplaying DAC reference voltage input
3	LINM	AI	L channel Multiplaying DAC input
4	RINM	AI	R channel Multiplaying DAC input
5	VOLM	AO	L channel operation amplifier, connected to (–) terminal
6	VOLP	AO	L channel operation amplifier, connected to (+) terminal
7	VOCM	AO	C channel operation amplifier, connected to (–) terminal
8	VOCP	AO	C channel operation amplifier, connected to (+) terminal
9	VORM	AO	R channel operation amplifier, connected to (–) terminal
10	VORP	AO	R channel operation amplifier, connected to (+) terminal
11	AVDD	A—	+5V power supply (Analog section)
12	DGND	—	Ground (digital section)
13	TESTI	Ic	LSI test terminal Normally connected to DGND
14	/IC	Ics	Initial clear terminal (Power ON resetting is necessary)
15	OVF	O	A/D Converter, Overflow detect terminal
16	$\overline{\text{CRS}}$	Its	Microprocessor interface reset terminal
17	CDI	Its	Microprocessor interface data input terminal
18	XCLK	Its	Microprocessor interface clock input terminal
19	D2	I/Ot	External delay RAM data terminal
20	D1	I/Ot	External delay RAM data terminal

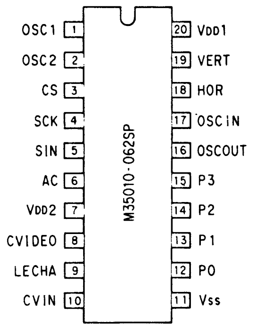
Pin No.	Pin Name	I/O	Function
21	D0	I/Ot	External delay RAM data terminal
22	A0	O	External data RAM address terminal
23	A1	O	External data RAM address terminal
24	A2	O	External data RAM address terminal
25	A3	O	External data RAM address terminal
26	A4	O	External data RAM address terminal
27	A5	O	External data RAM address terminal
28	A6	O	External data RAM address terminal
29	A7	O	External data RAM address terminal
30	A12	O	External data RAM address terminal
31	A14	O	External data RAM address terminal
32	DVDD	—	+5V power supply (digital section)
33	DVDD	—	+5V power supply (digital section)
34	/WE	O	External delay RAM write enable terminal
35	A13	O	External dalay RAM address terminal
36	A8	O	External dalay RAM address terminal
37	A9	O	External dalay RAM address terminal
38	A11	O	External dalay RAM address terminal
39	/OE	O	External dalay RAM output enable terminal
40	A10	O	External dalay RAM address terminal
41	/CE	O	External delay RAM chip enable terminal
42	D7	I/Ot	External delay RAM data terminal
43	D6	I/Ot	External delay RAM data terminal
44	D5	I/Ot	External delay RAM data terminal
45	D4	I/Ot	External delay RAM data terminal
46	D3	I/Ot	External delay RAM data terminal
47	SYNCO	O	External A/D converter word clock terminal
48	256FS	O	External A/D converter 256fs clock terminal
49	ADD	It	External A/D converter data input terminal
50	64FS	O	External A/D converter 64fs clock terminal
51	XO	O	Crystal oscillator connecting terminal
52	XI	I	Crystal oscillator connecting terminal
53	DGND	—	Ground (digital section)
54	AVDD	A—	+5V power supply (Analog section)
55	FR	AO	FR channel D/A input
56	FL	AO	FL channel D/A output
57	CHL	A—	LINS input Sample/hold Capacitor external terminal
58	LINS	AI	L channel A/D input
59	RINS	AI	R channel A/D input
60	CHR	A—	RINS input Sample/hold Capacitor external terminal
61	RL	AO	RL channel D/A output
62	RR	AO	RR channel D/A input
63	CV	AO	A/D, multiplaying DAC center voltage
64	AGND	A—	Ground (Analog section)

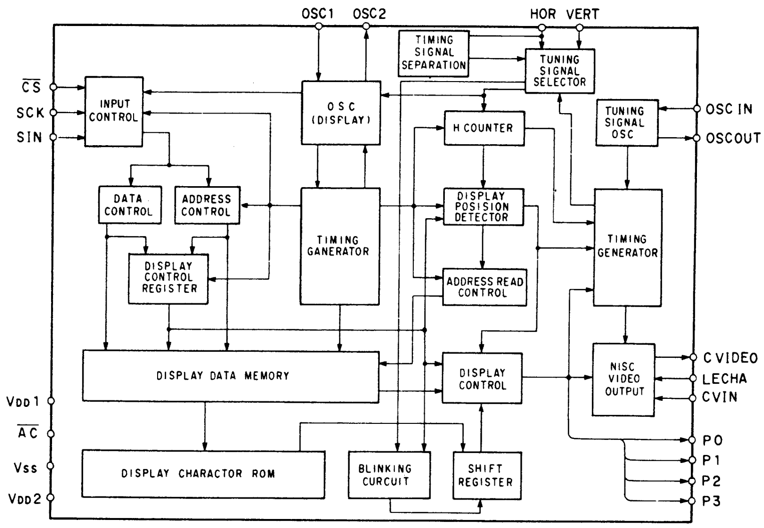
Note : Alphabets used in the above I/O column represent as follows.

I : Input terminal **O** : Output terminal **t** : TTL level

C : CMOS level **S** : Schmidt input A : Analog

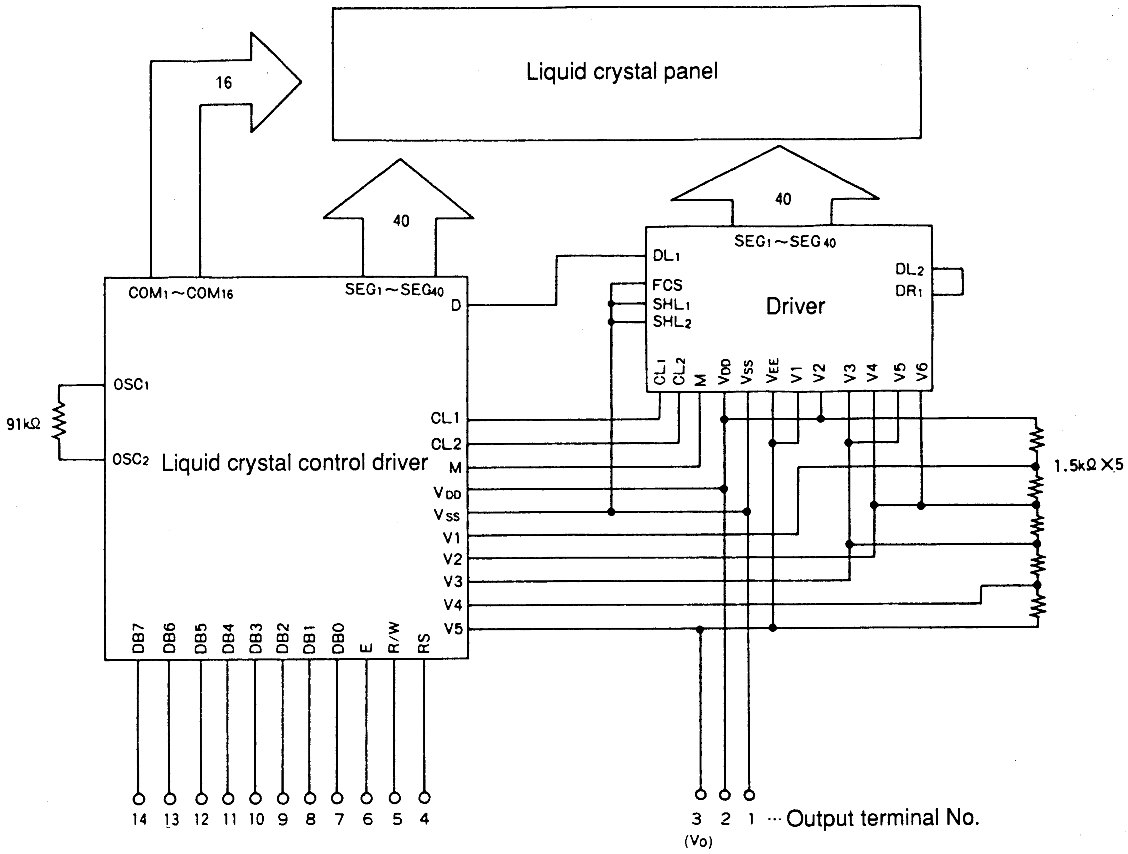
IC9 : M35010-062SP
Super Impose





Pin No.	Symbol	Terminal name	Function
1 2	OSC1 OSC2	External terminal for oscillation circuit	External terminal of oscillation circuit for display. The standard oscillation frequency is about 7MHz. The display position in the horizontal direction and width of characters on the TV screen are determined according to this oscillation frequency.
3	$\overline{CS}$	Chip select input	Chip select terminal "L" is set when the serial data is transferred. Hysteresis input. A pull-up resistor is built in.
4	SCK	Serial clock input	When $\overline{CS}$ terminal is "L", the SIN serial data is taken in at the SCK rise. Hysteresis input. A pull-up resistor is built in.
5	SIN	Serial data input	The data and addresses for the display control register and display data memory are inputted in the serial form. Hysteresis input. A pull-up resistor is built in.
6	$\overline{AC}$	Auto clear input	The IC internal circuit is reset when in "L" state. Hysteresis input. A pull-up resistor is built in.
7	VDD2	Power supply terminal	Analog type power supply terminal that should be connected to +5V.
8	CVIDEO	Composite video signal output	Output terminal for composite video signal 2Vp-p composite video signal is output. When making a superimposition, the character output and other features are superimposed on the composite video signals inputted through the CVIN terminal.
9	LECHA	Character level input	Input terminal to determine the output level for the characters in the composite video signals. The color of characters is white.
10	CVIN	Video input	Input terminal for external composite video signals. When making a superimposition, the character output and other features are superimposed on these composite video signals.
11	Vss	Ground terminal	Connection to GND is made by using this terminal.
12	P0	Port 0 output	Port terminal output or character background signals (BLNK1) are output. The polarity can be selected when determining the font ROM.
13	P1	Port 1 output	Port terminal output or character background signals (CO1) are output. The polarity can be selected when determining the font ROM.
14	P2	Port 2 output	Port terminal output or character background signals (BLNK2) are output. The polarity can be selected when determining the font ROM.
15	P3	Port 3 output	Port terminal output or character background signals (CO2) are output. The polarity can be selected when determining the font ROM.
16 17	OSCOUT OSCIN	Oscillation circuit for generation of synchronous signals	External terminal of the oscillation circuit for generation of synchronous signals. The oscillation frequency is 14.32MHz when the NTSC system is used and 17.73MHz when the PAL system is used.
18	HOR	Horizontal synchronous signal input	Horizontal synchronous signals are inputted. Hysteresis input The polarity can be selected when determining the font ROM.
19	VERT	Vertical synchronous signal input	Vertical synchronous signals are inputted. Hysteresis input The polarity can be selected when determining the font ROM.
20	VDD1	Power supply terminal	Digital type power supply terminal that should be connected to +5V.

■ LCD UNIT DATA (VP332900)



Pin No.	Pin Name	Function
1	VSS	(−) side power supply terminal, 0V
2	VDD	(+) side power supply terminal, +5V
3	VO	LCD drive voltage application terminal
4	RS	Input terminal , HI = Data, LOW = Instruction
5	R/W	Input terminal , HI = Read, LOW = Write
6	E	Input terminal , enable signal
7	DB0	Data bus line
8	DB1	
9	DB2	
10	DB3	
11	DB4	
12	DB5	
13	DB6	
14	DB7	

* The IC's used for the LCD unit are as follows.

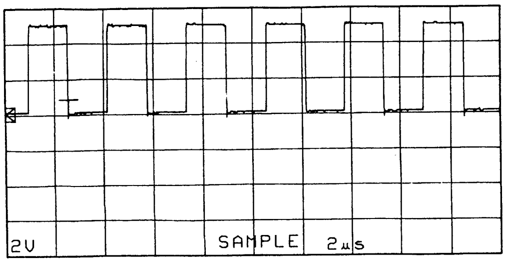
IX607280(LC7930)

IX607290 (HD44780A00)

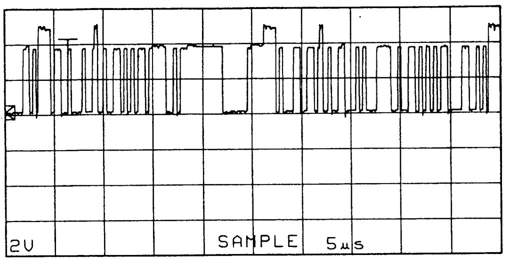
Any part other than IC can't be replaced individually. If replacement becomes necessary, be sure to replace as a whole unit.

■ TEST POINT WAVEFORMS

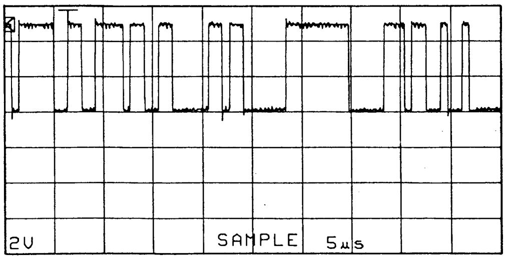
Point ① (Pin18 of IC610)
V : 2V/div H : 2µsec/div
DC range 1 : 1 probe
* This waveform is produced when the sound field program is changed.



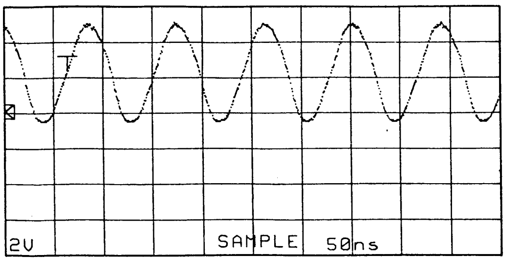
Point ② (Pin19 of IC610)
V : 2V/div H : 5µsec/div
DC range 1 : 1 probe



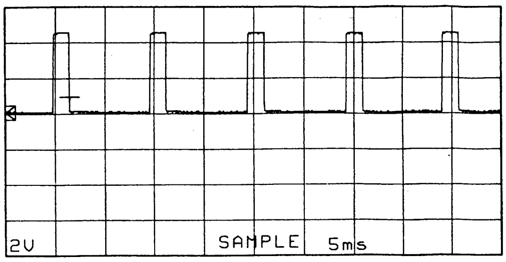
Point ③ (Pin24 of IC610)
V : 2V/div H : 5µsec/div
DC range 1 : 1 probe



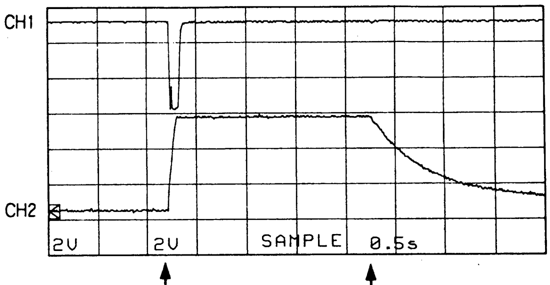
Point ④ (Pin52 of IC610)
V : 2V/div H : 50nsec/div
DC range 1 : 1 probe



Point ⑤ (Pin50 of IC624)
V : 2V/div H : 5msec/div
DC range 1 : 1 probe
* This waveform is produced when the function is changed.



Point ⑥
(CH1 : Pin8 of IC624
CH2 : Out terminal of IC623)
V : 2V/div H : 0.5sec/div
DC range 1 : 1 probe

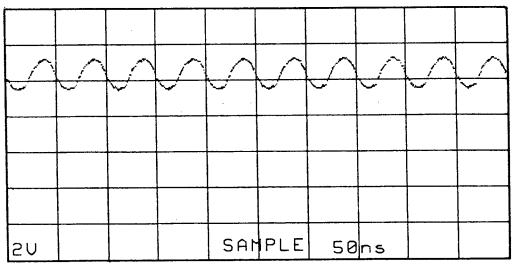


With the POWER switch turned ON, connect the power cord to the AC outlet.

Disconnect the power cord from the AC outlet.

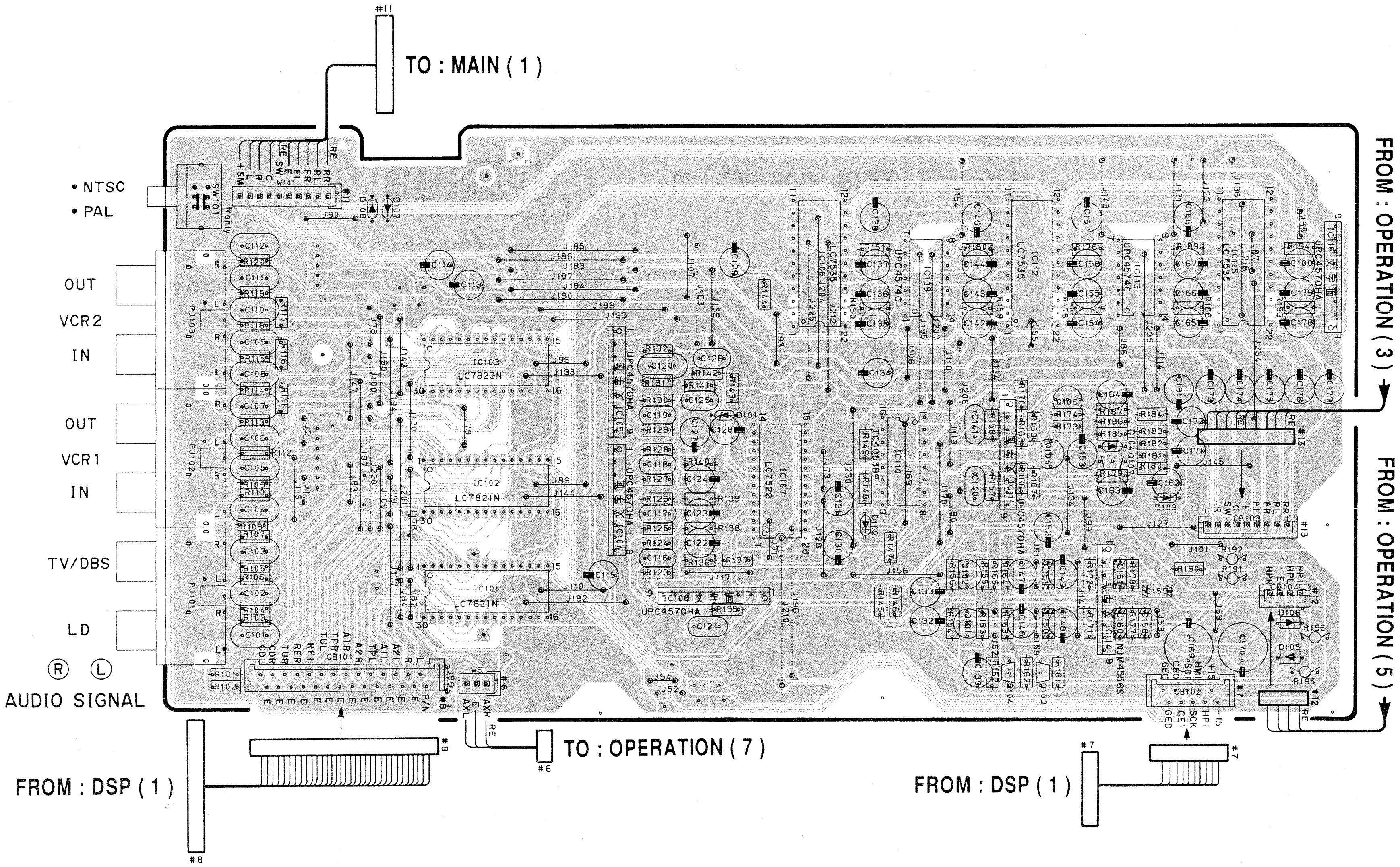
* This waveform is not available by pushing the power switch ON and OFF.

Point ⑦ (Pin10 of IC624)
V : 2V/div H : 50nsec/div
DC range 1 : 1 probe

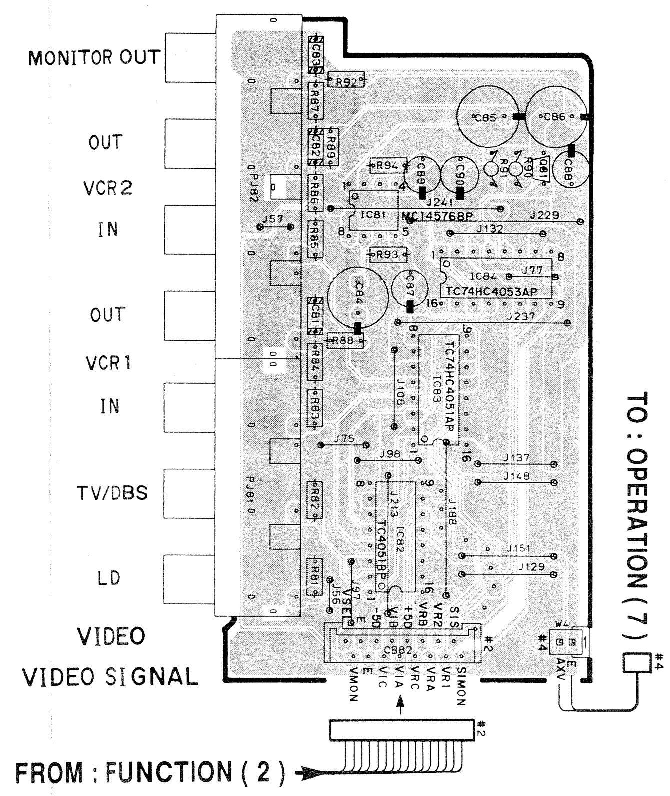


■ PRINTED CIRCUIT BOARD (Foil side)

FUNCTION P. C. B. (1)



FUNCTION P. C. B. (3)



● Semiconductor Location

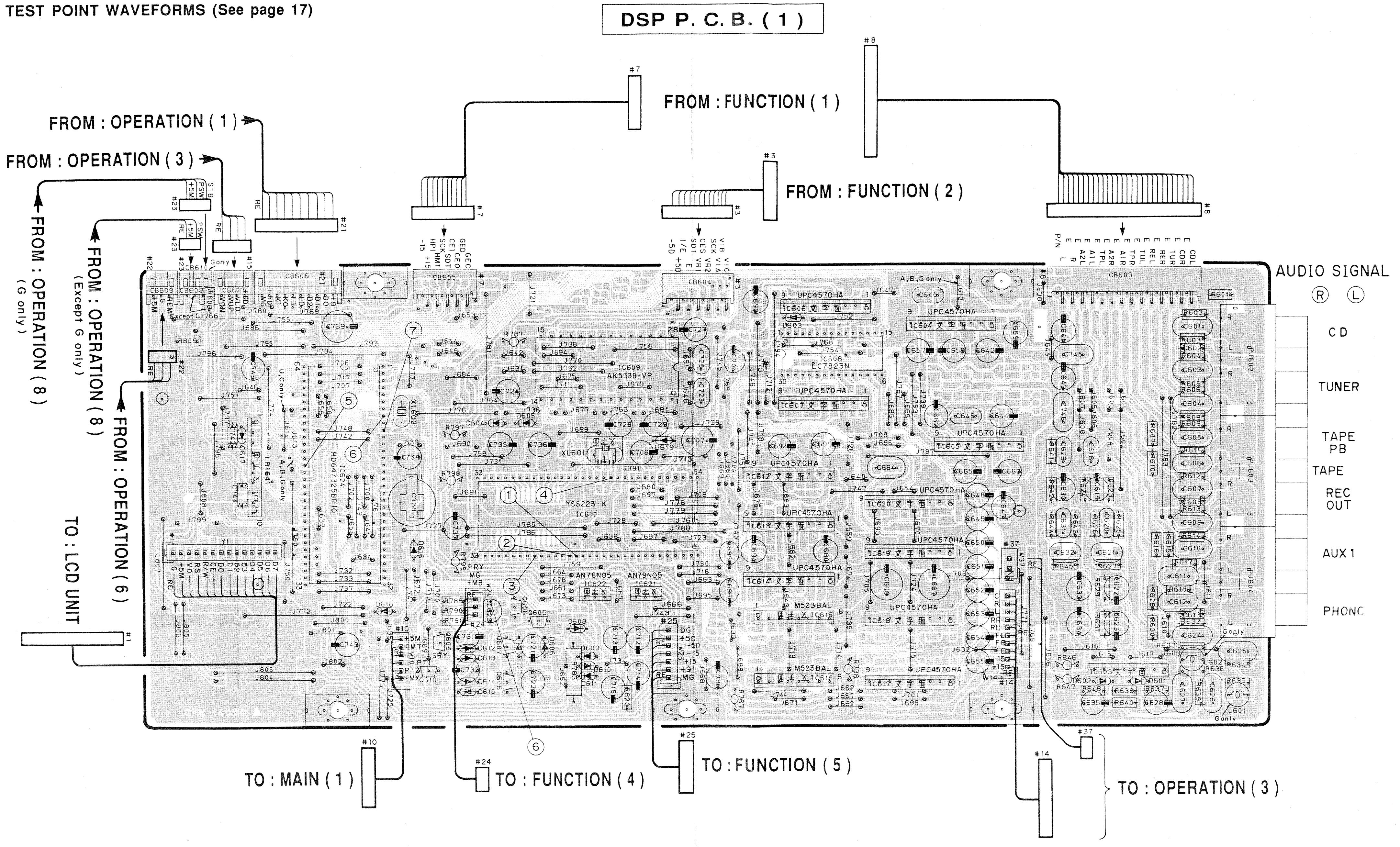
Ref. No.	Location
IC101	C3
IC102	C3
IC103	C3
IC104	C3
IC105	C3
IC106	C3
IC107	D3
IC108	D2

Ref. No.	Location
IC109	D2
IC110	D3
IC111	D3
IC112	D2
IC113	E2
IC114	E3
IC115	E2
IC116	F2

Ref. No.	Location
Q101	D3
Q102	D3
Q103	D4
Q104	D4
Q105	E3
Q106	E3
Q107	E3

■ PRINTED CIRCUIT BOARD (Foil side)

① to ⑦ : TEST POINT WAVEFORMS (See page 17)

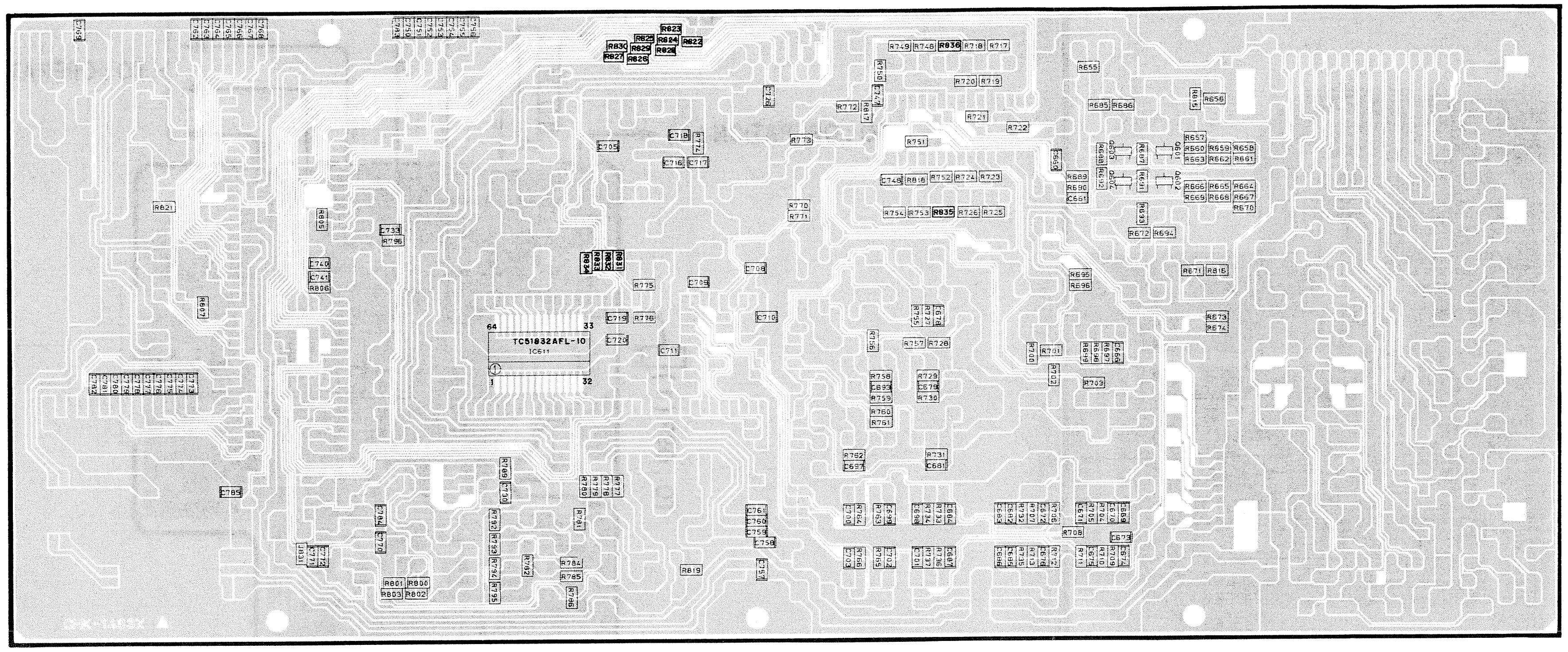


● Semiconductor Location

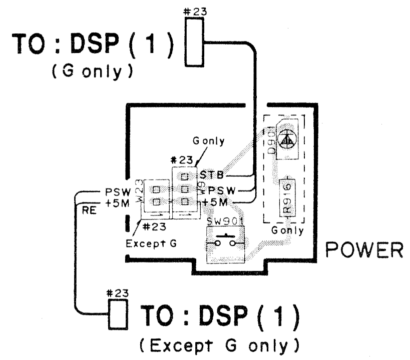
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
IC603	F4	IC615	E4	Q605	D4
IC604	F2	IC616	E4	Q606	D4
IC605	F3	IC617	E4	Q607	D4
IC606	E2	IC618	E4	Q608	D4
IC607	E3	IC619	E3	Q609	C4
IC608	E3	IC620	E3	Q610	C4
IC609	D3	IC621	D4		
IC610	D3	IC622	D4		
IC612	E3	IC623	D4		
IC613	E3	IC624	C3		
IC614	E4	IC625	C3		

■ PRINTED CIRCUIT BOARD (Foil side)

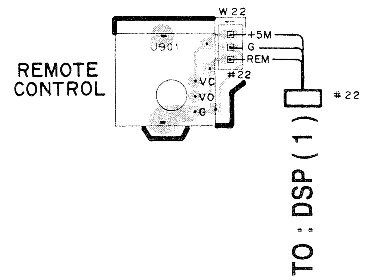
DSP P. C. B. (1)



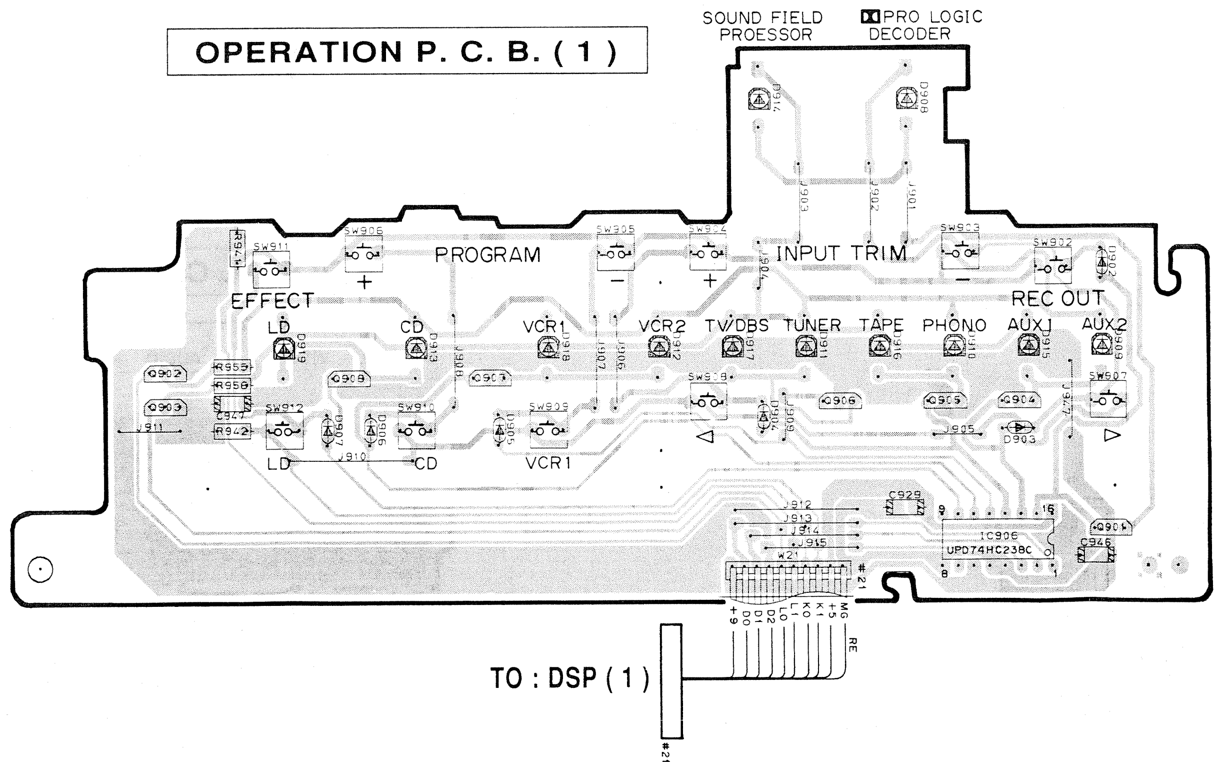
OPERATION P. C. B. (8)



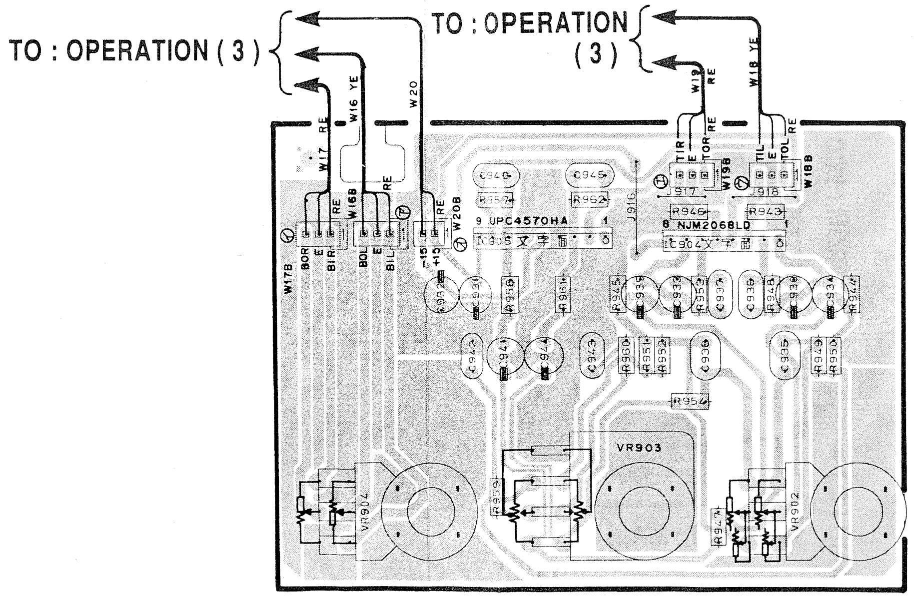
OPERATION P. C. B. (6)



OPERATION P. C. B. (1)

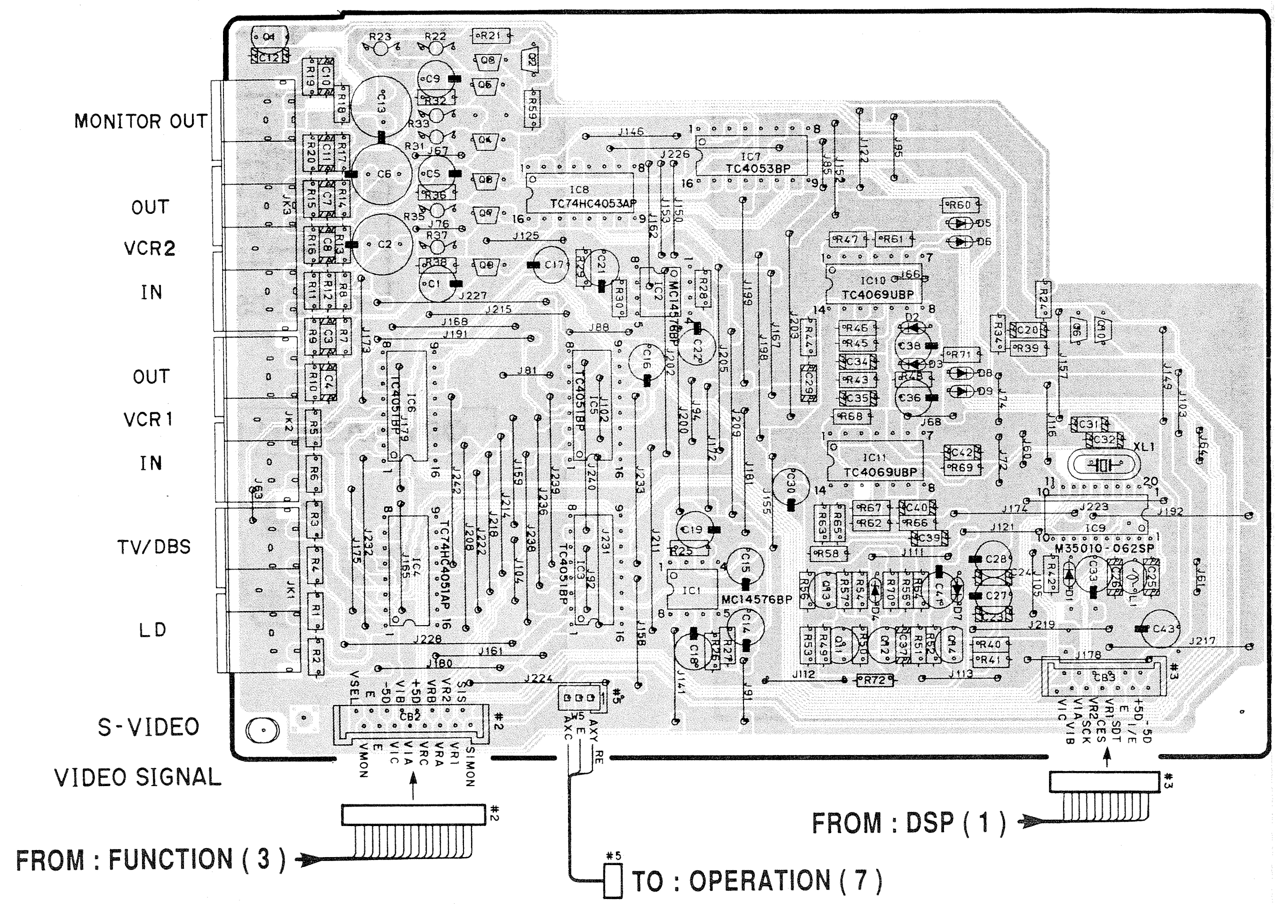


OPERATION P. C. B. (4)

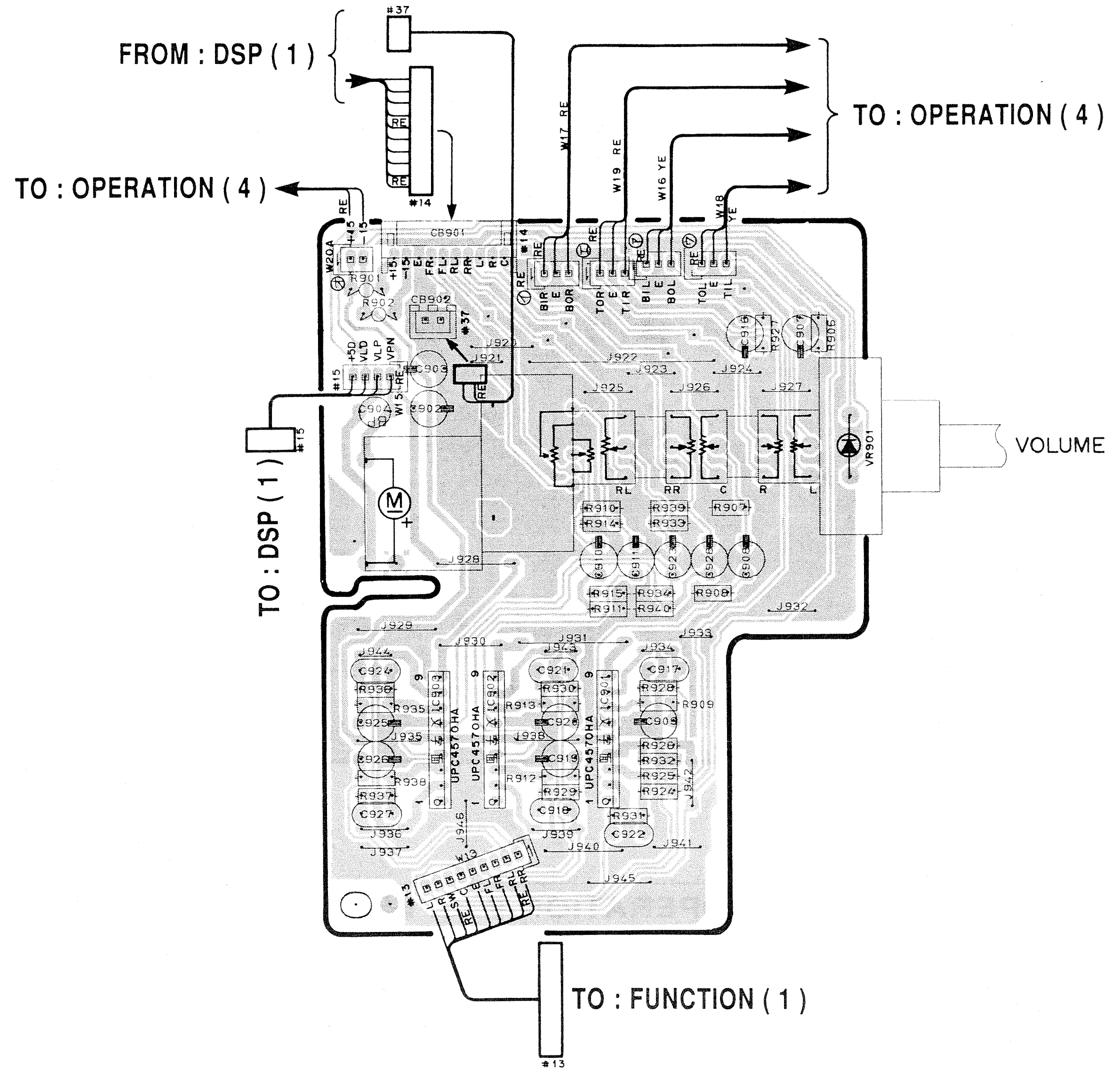


■ PRINTED CIRCUIT BOARD (Foil side)

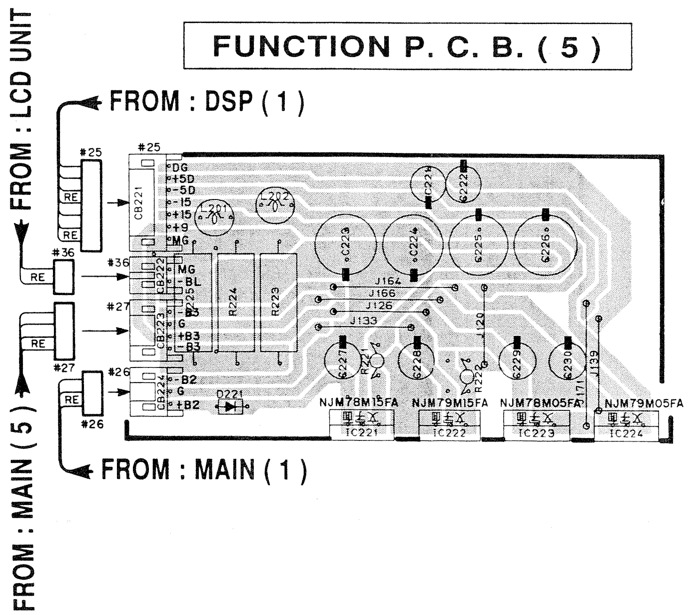
FUNCTION P. C. B. (2)



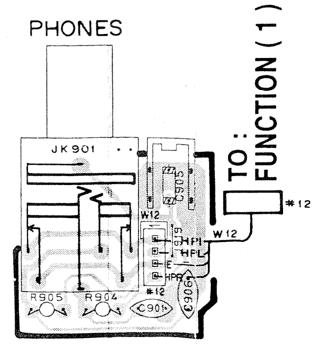
OPERATION P. C. B. (3)



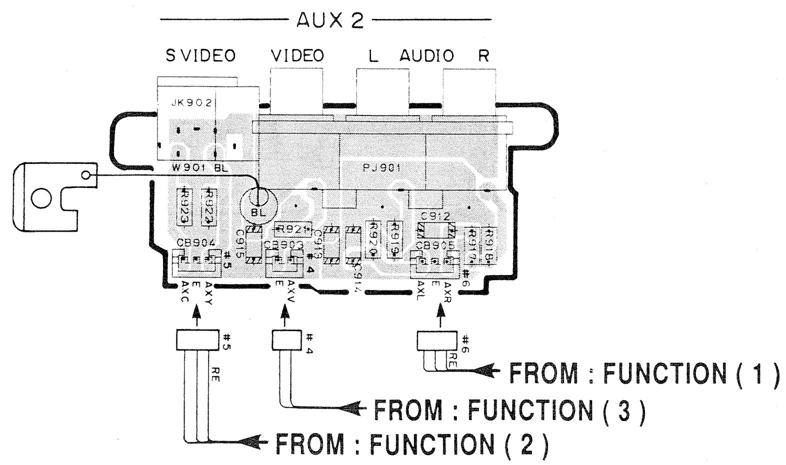
FUNCTION P. C. B. (5)



OPERATION P. C. B. (5)



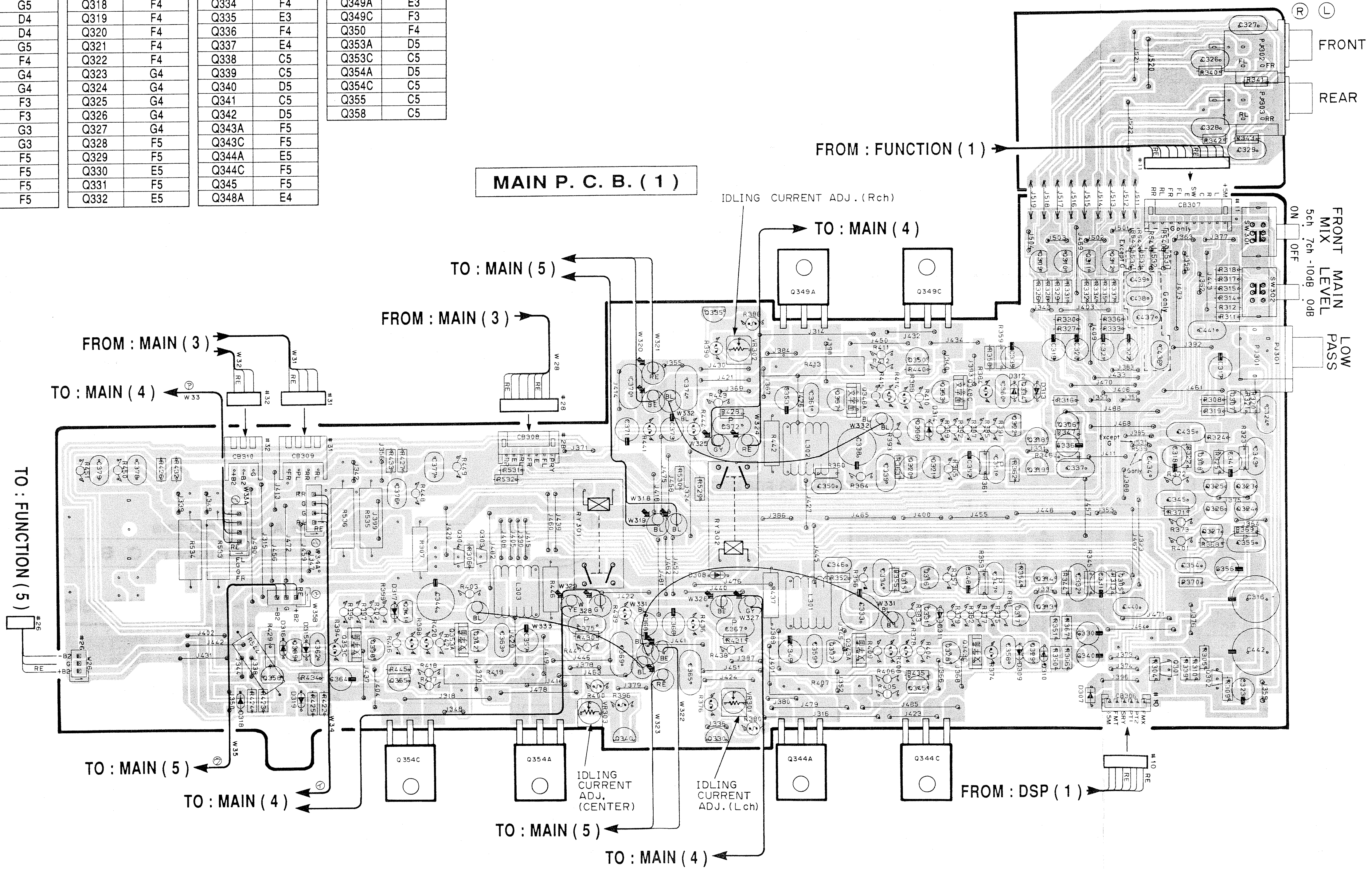
OPERATION P. C. B. (7)



■ PRINTED CIRCUIT BOARD (Foil side)

● Semiconductor Location

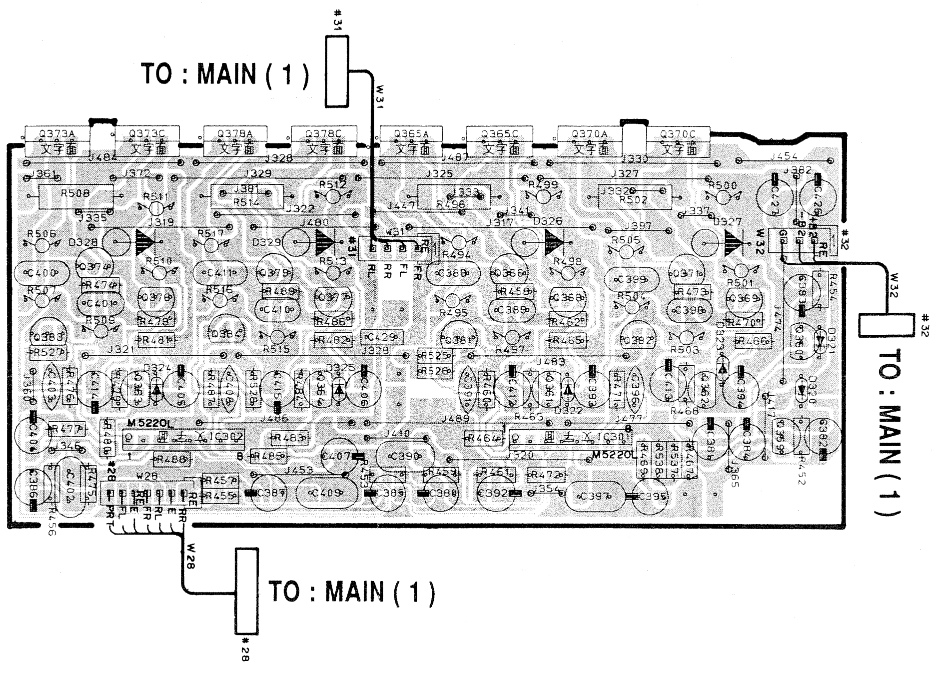
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
Q301	G5	Q317	F5	Q333	F4	Q348C	F4
Q302	G5	Q318	F4	Q334	F4	Q349A	E3
Q303	D4	Q319	F4	Q335	E3	Q349C	F3
Q304	D4	Q320	F4	Q336	F4	Q350	F4
Q305	G5	Q321	F4	Q337	E4	Q353A	D5
Q306	F4	Q322	F4	Q338	C5	Q353C	C5
Q307	G4	Q323	G4	Q339	C5	Q354A	D5
Q308	G4	Q324	G4	Q340	D5	Q354C	C5
Q309	F3	Q325	G4	Q341	C5	Q355	C5
Q310	F3	Q326	G4	Q342	D5	Q358	C5
Q311	G3	Q327	G4	Q343A	F5		
Q312	G3	Q328	F5	Q343C	F5		
Q313	F5	Q329	F5	Q344A	E5		
Q314	F5	Q330	E5	Q344C	F5		
Q315	F5	Q331	F5	Q345	F5		
Q316	F5	Q332	E5	Q348A	E4		



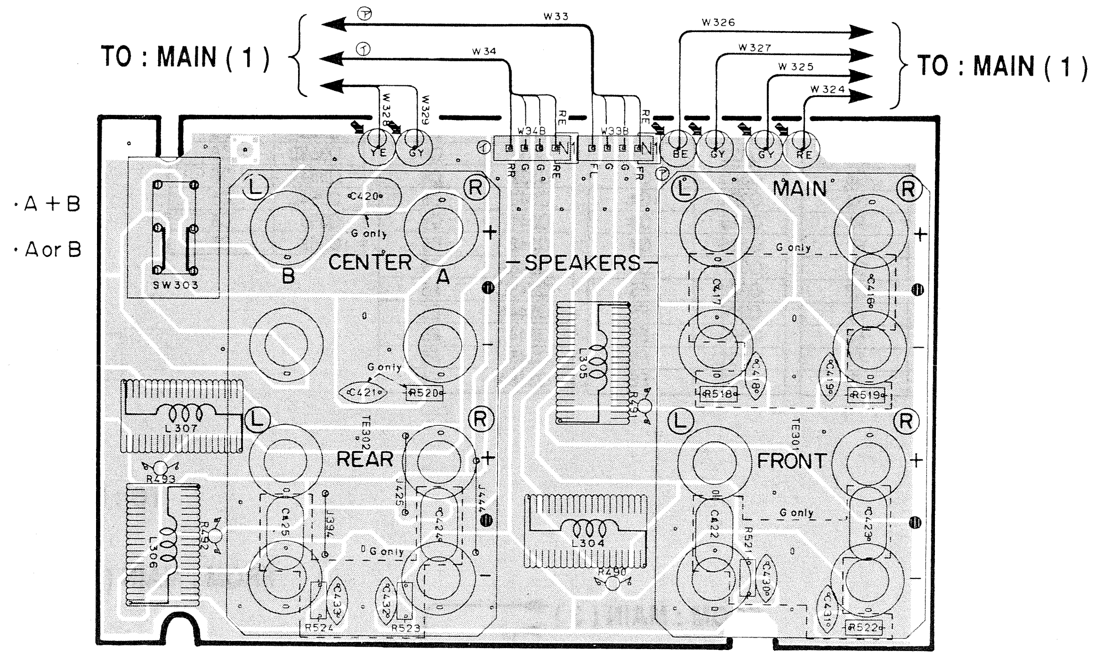
DSP-A970

■ PRINTED CIRCUIT BOARD (Foil side)

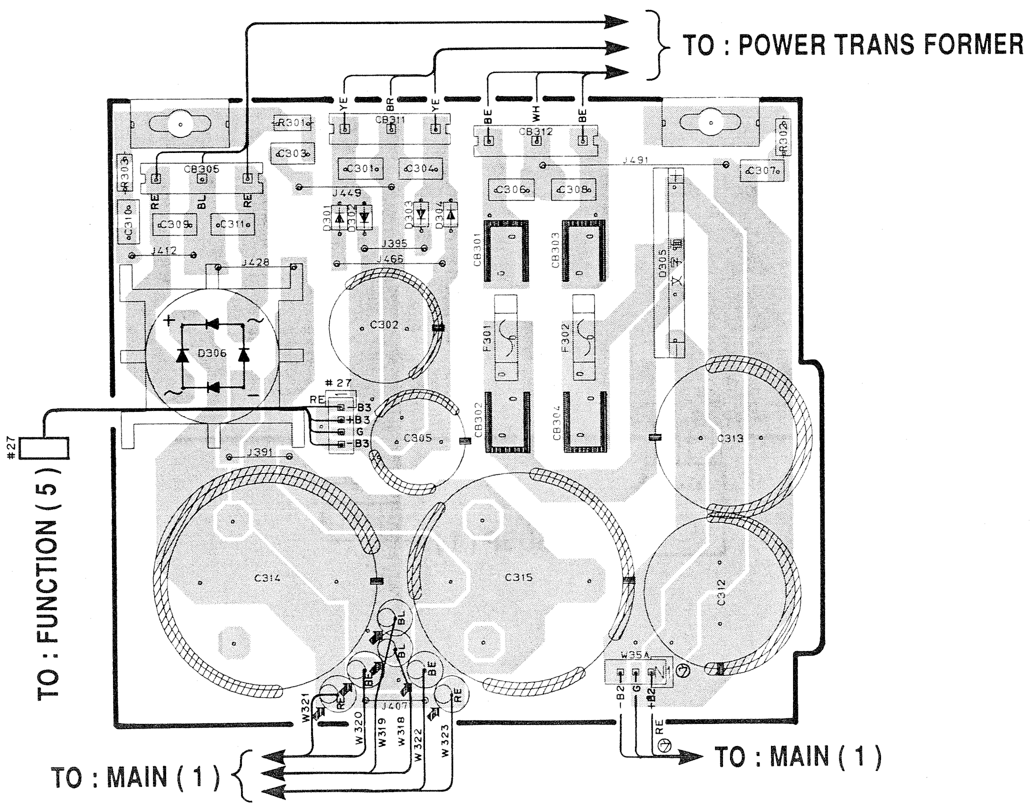
MAIN P. C. B. (3)



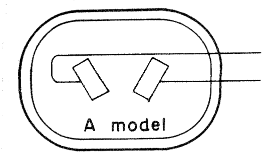
MAIN P. C. B. (4)



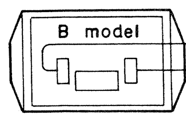
MAIN P. C. B. (5)



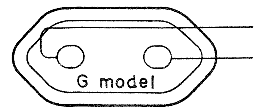
AC OUTLET
SWITCHED
100W MAX.



AC OUTLET
SWITCHED
100W MAX.

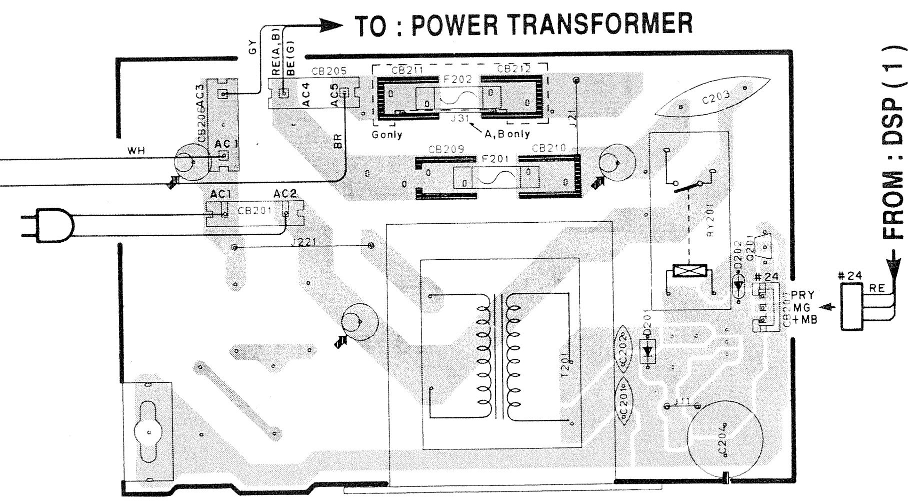


AC OUTLET
SWITCHED
100W MAX.



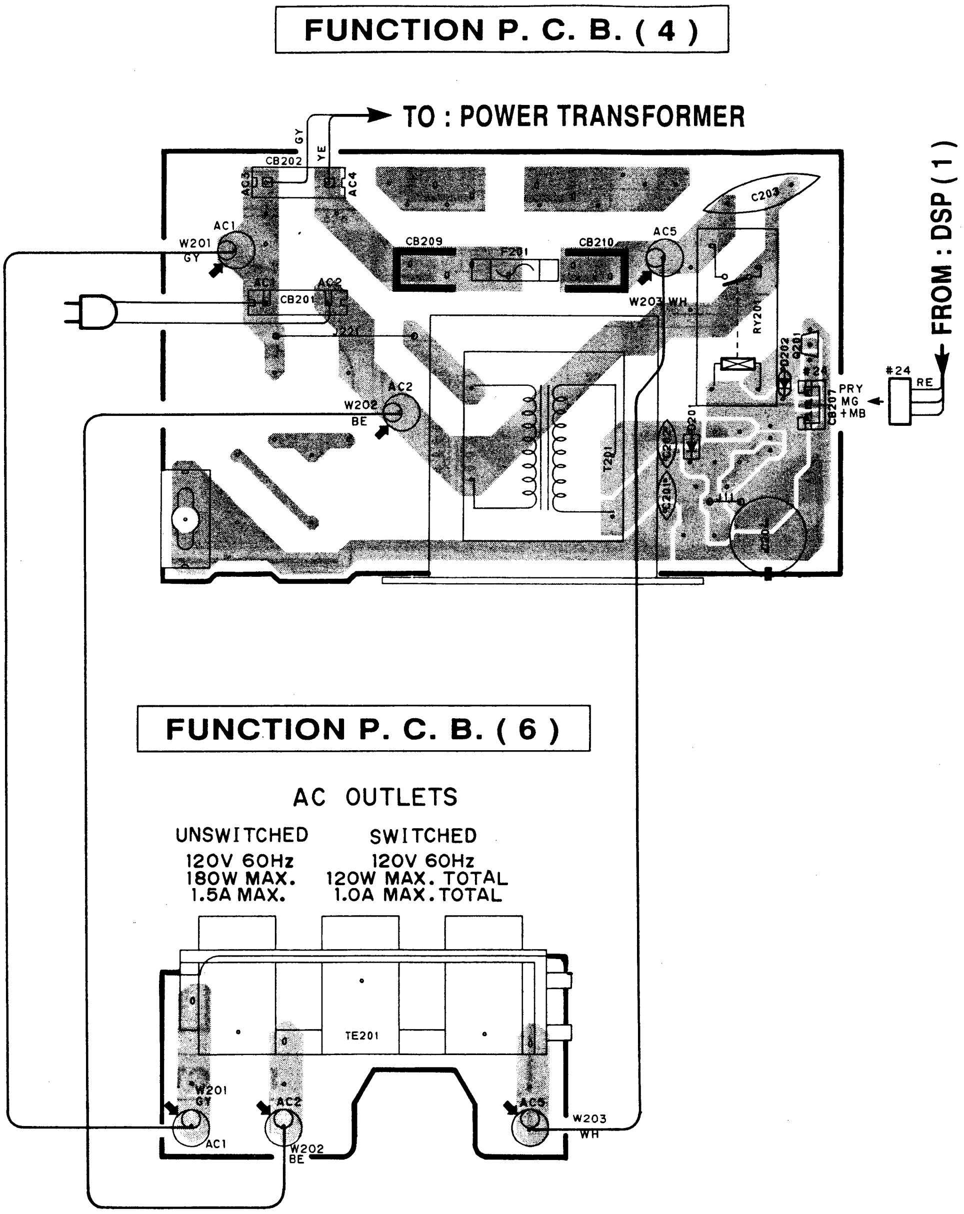
● **A, B, G models**

FUNCTION P. C. B. (4)



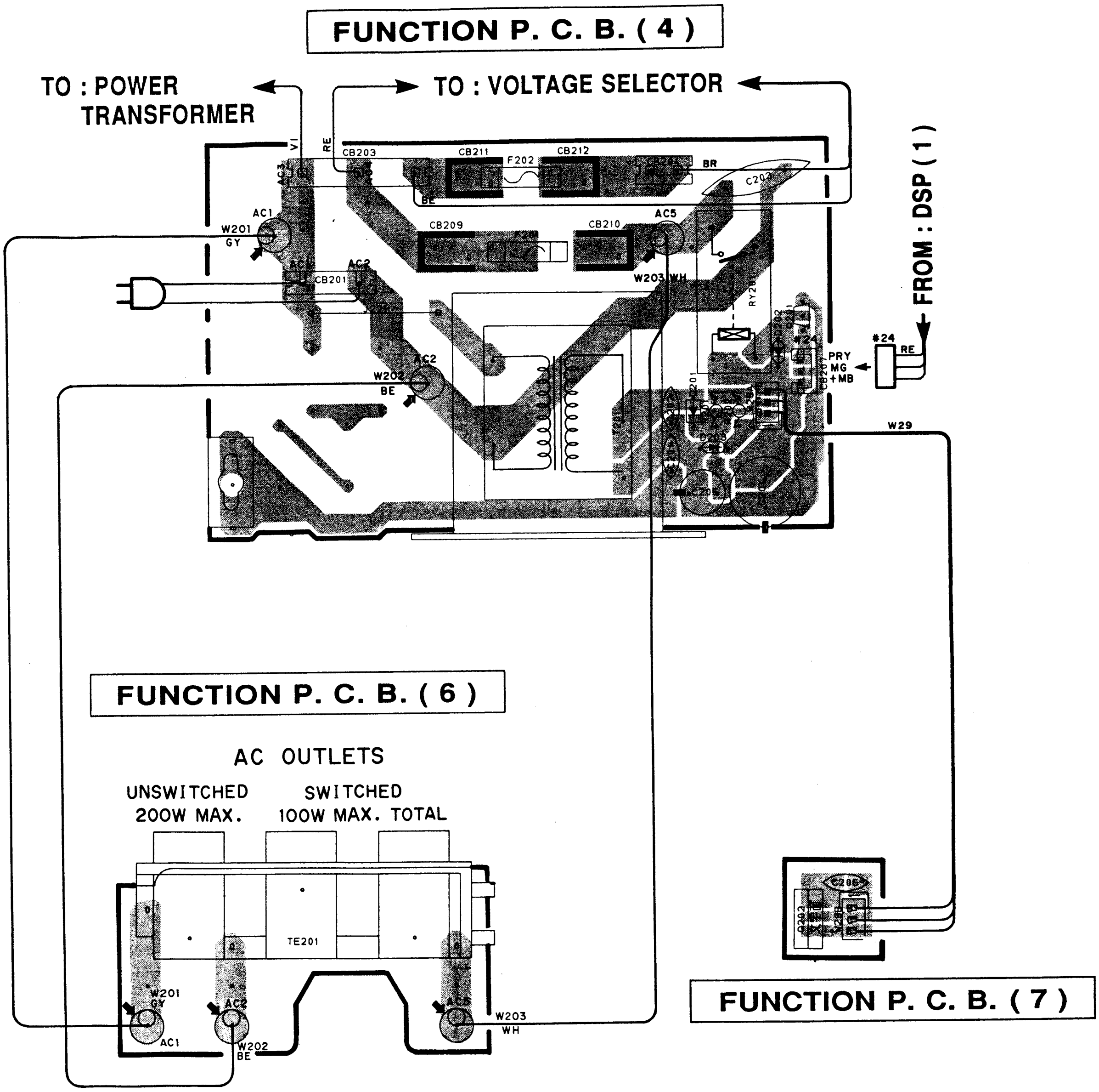
■ PRINTED CIRCUIT BOARD (Foil side)

● U, C models



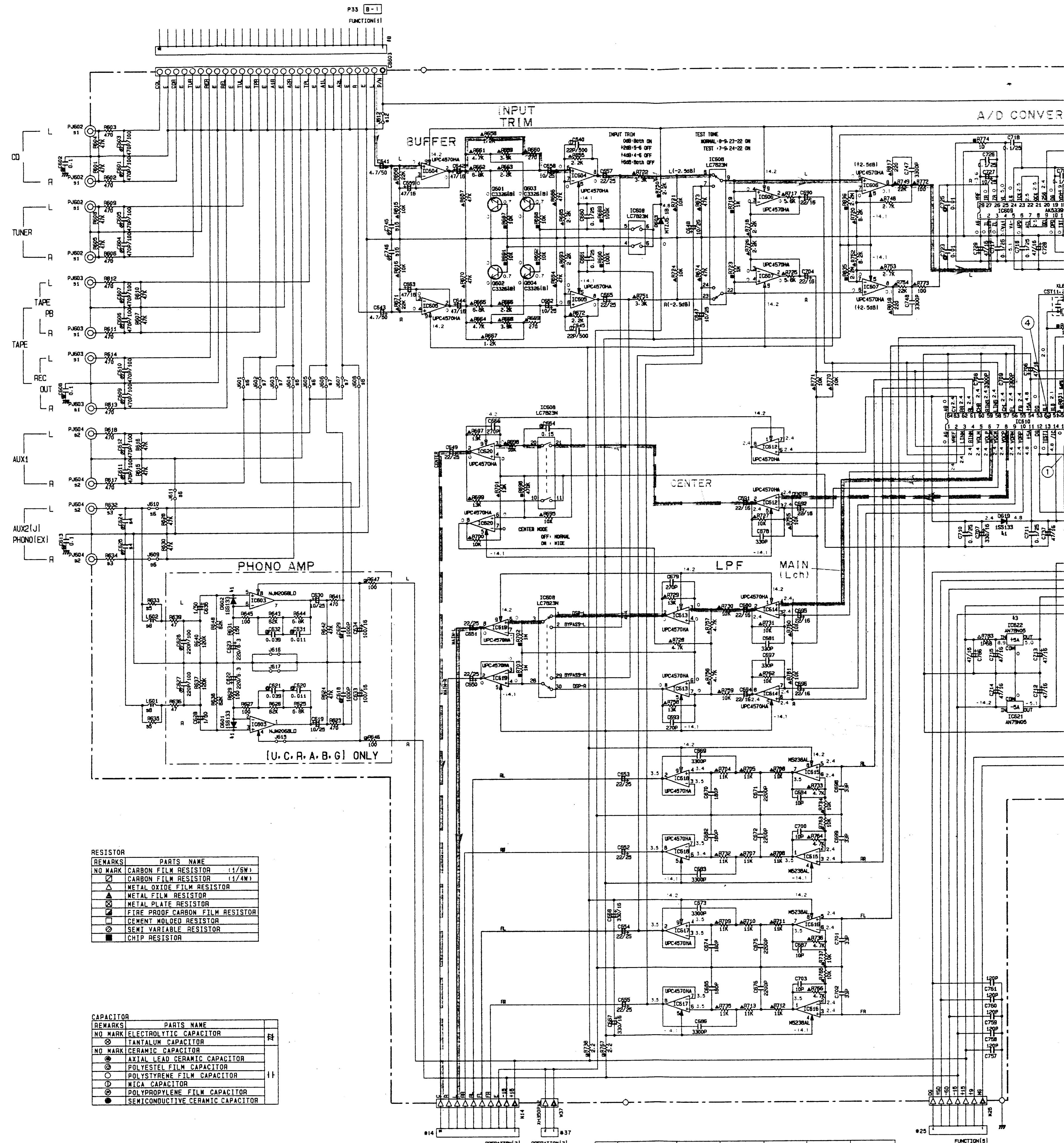
■ PRINTED CIRCUIT BOARD (Foil side)

● R model



■ SCHEMATIC DIAGRAM (DSP)

① to ⑦ : TEST POINT WAVEFORMS (See page 17)



RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
▨	CARBON FILM RESISTOR (1/4W)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊕	AXIAL LEAD CERAMIC CAPACITOR
◎	POLYESTEL FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⦶	MICA CAPACITOR
⊘	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

Interchangeable Parts at Manufacture-Stage

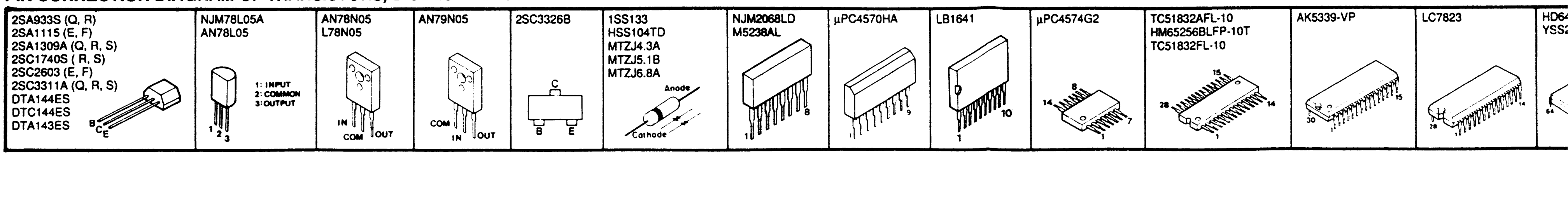
Mark	Reference Parts Number	Parts Name
※1	D601·602·604–614·616·618 619	1SS133 HSS104TD
※2	IC611	HM65256BLFP-10T TC51832FL-10
※3	IC622	AN78N05 L78N05
※4	IC623	NJM78L05A AN78L05
※5	Q607·608	2SC1740S(R/S) 2SC2603(E/F) 2SC3311A(Q/R/S)
※6	Q610	2SA933S(Q/R) 2SA1115(E/F) 2SA1309A(Q/R/S)
※7	R783	1P68 HL21468 HL71468

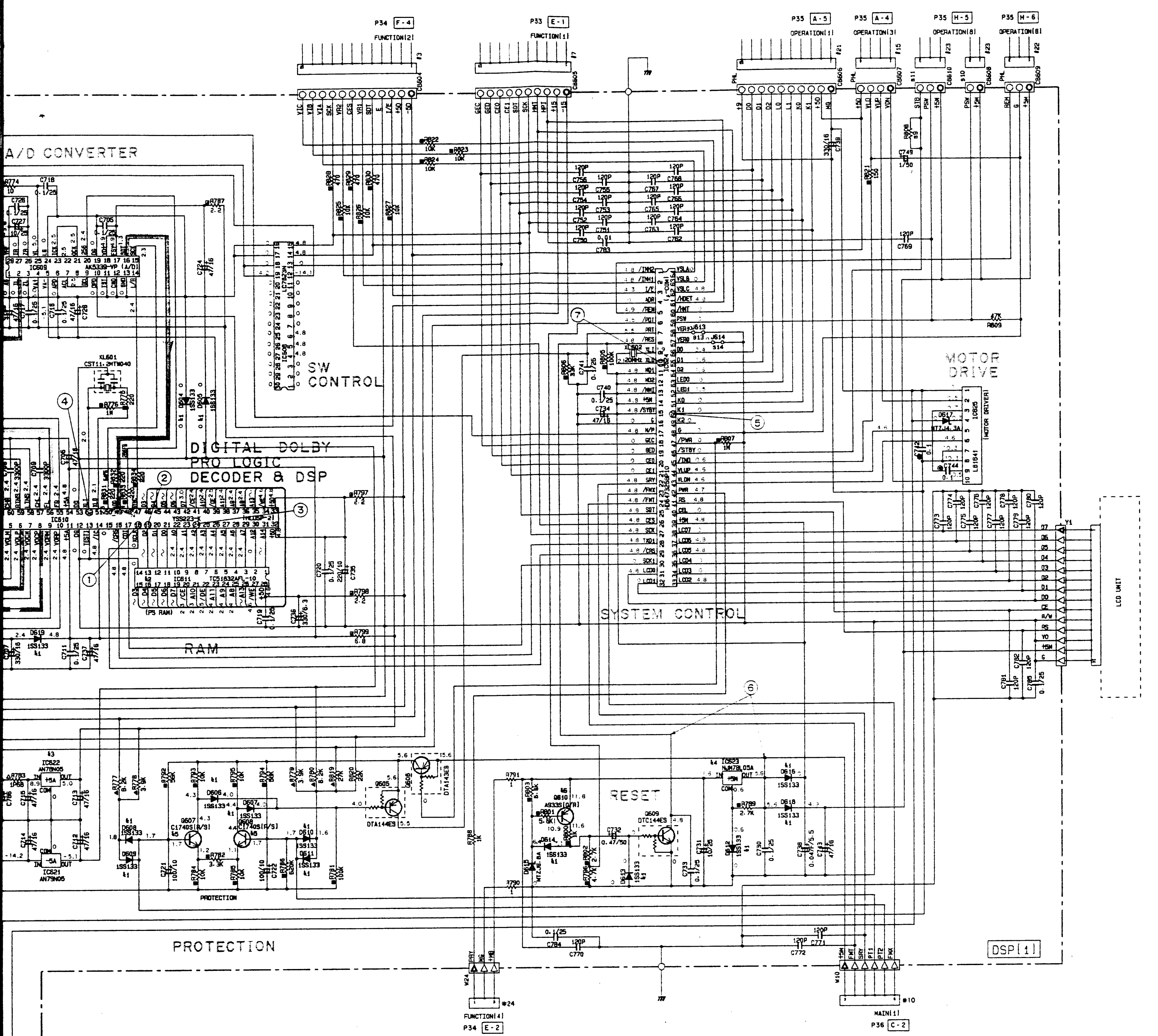
KIND	START	LAST	UNLISTED_NO.
R	601	836	649·651·804·810–812
C	601	786	646
D	601	619	
Q	601	610	
IC	601	625	
CB	601	610	

s	Parts Number	J	U, C	R	A, B	G
1	PJ602·603	VK17740	VJ69630	VJ69630	VJ69630	VJ69630
2	PJ604	VK17740	VK42160	VK42160	VK42160	VK42160
3	R632·634	470	10	10	10	10
4	C624·625	470P/100	100P/100	100P/100	100P/100	100P/100
5	R633·635	X	1	1	1	2.2K
6	J601·604·605·608 609·610·611	O	X	X	X	X
7	J602·603·606·607	X	O	O	O	O
8	L601·602	X	X	X	X	220uH
9	R608	47K	47K	47K	47K	X
10	CB608	VB85810	VB85810	VB85810	VB85810	X
11	CB610	X	X	X	X	VB85820
12	J612	X	X	X	O	O
13	J613	O	X	X	O	O
14	J614	O	O	X	X	X
15	C745·746	100P/100	100P/100	100P/100	100P/100	220P/100
**	PWB	XM403	XM404	XM404	XM404	XM404
**	PCB	V014290	V014300	V014310	V014320	V014330

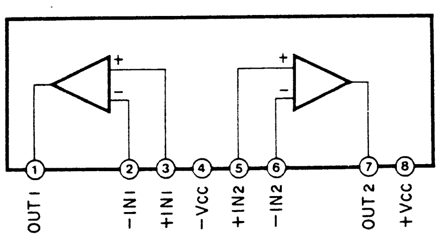
NOTE) X : OPEN
O : USE

PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

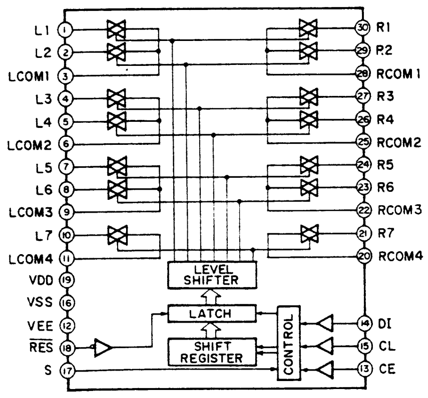




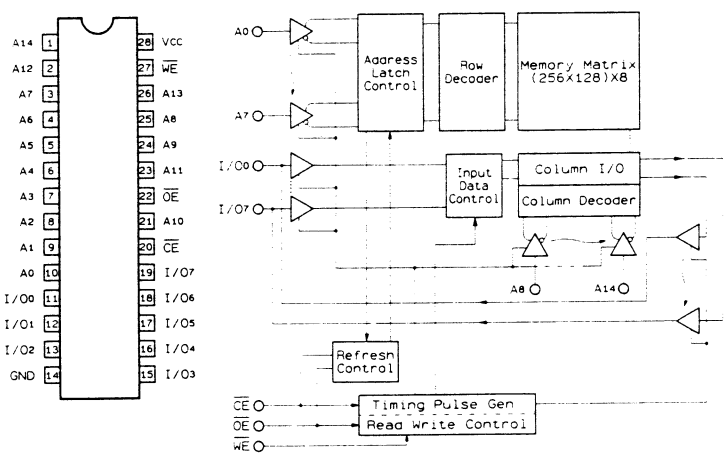
IC603 : NJM2068LD
IC615, 616 : M5238AL
Dual OP-Amp



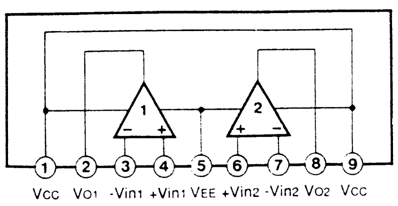
IC608 : LC7823N
Analog Function Switch



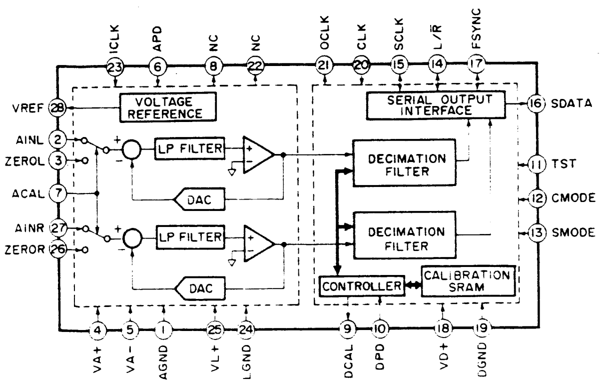
IC611 : TC51832AFL-10, HM65256BLFP-10T
or TC51832FL-10
32768-word x 8 bit High Speed Pseudo Static RAM



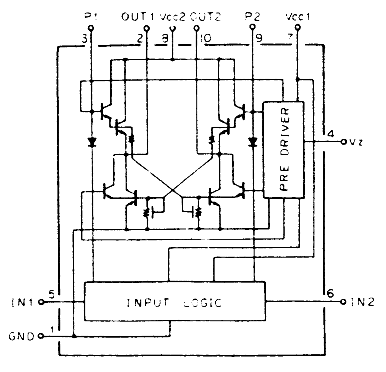
IC604~607, 612~614, 617~620 : µPC4570HA
Dual OP-Amp



IC609 : AK5339-VP
16 bit 2-Channel A/D Converter

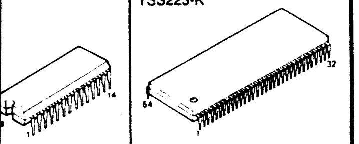


IC625 : LB1641
Motor Driver



7823

HD6473258P
YSS223-K

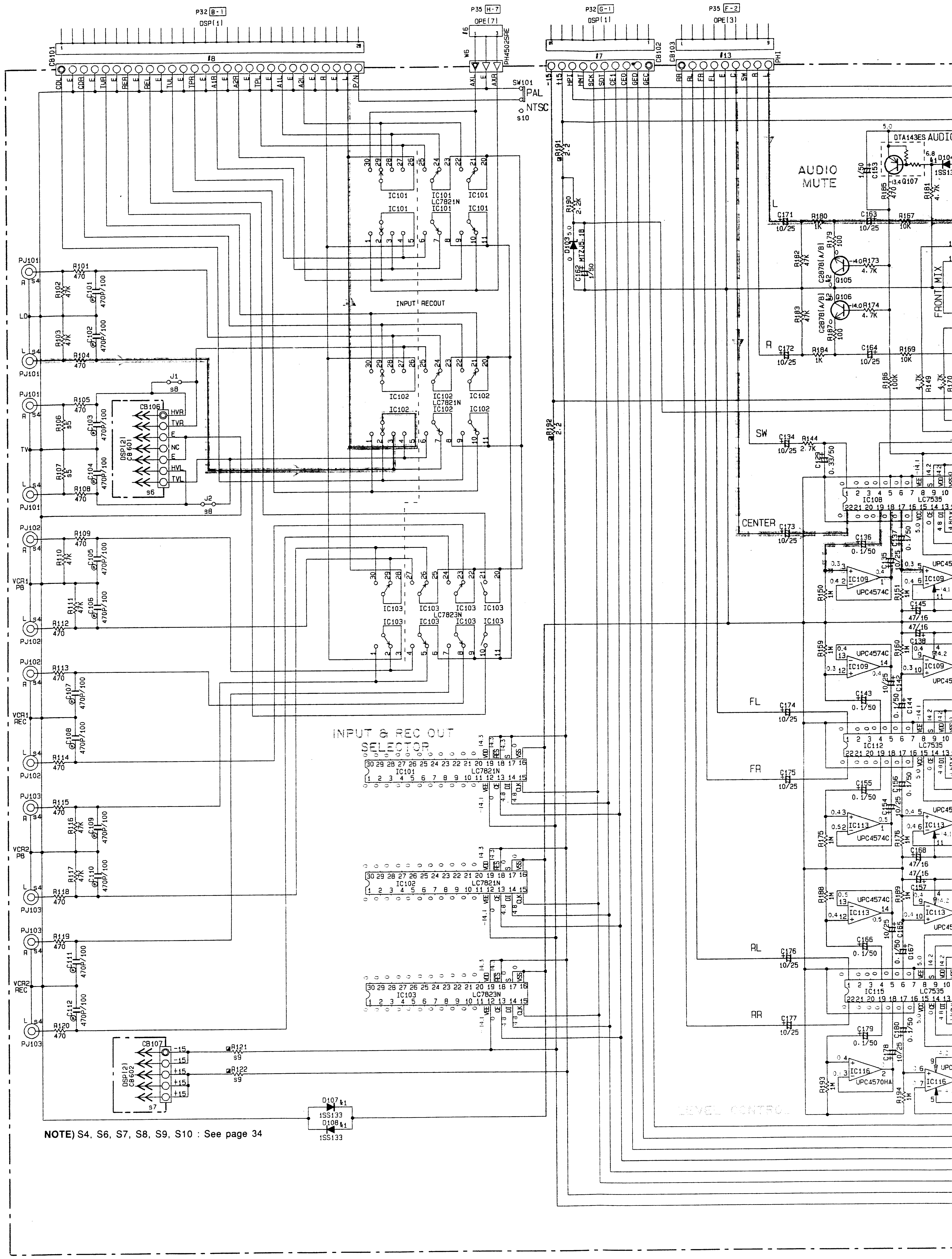


Conditions

- INPUT → LD
- INPUT TRIM → 0dB
- REC OUT → SOURCE
- PROGRAM → No.1 CONCERT HALL 1 (Hall A in Europe)

- *All voltage are measured with a 10MΩ/V DC electric volt meter.*
- *Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.*
- *Schematic diagram is subject to change without notice.*

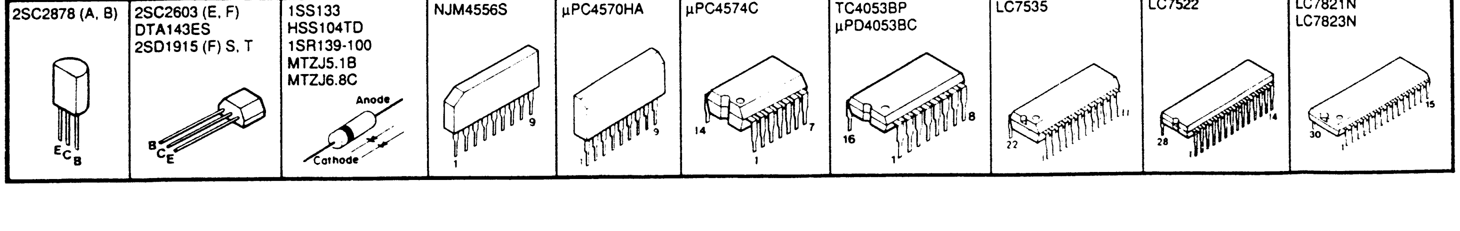
■ SCHEMATIC DIAGRAM (FUNCTION 1/2)

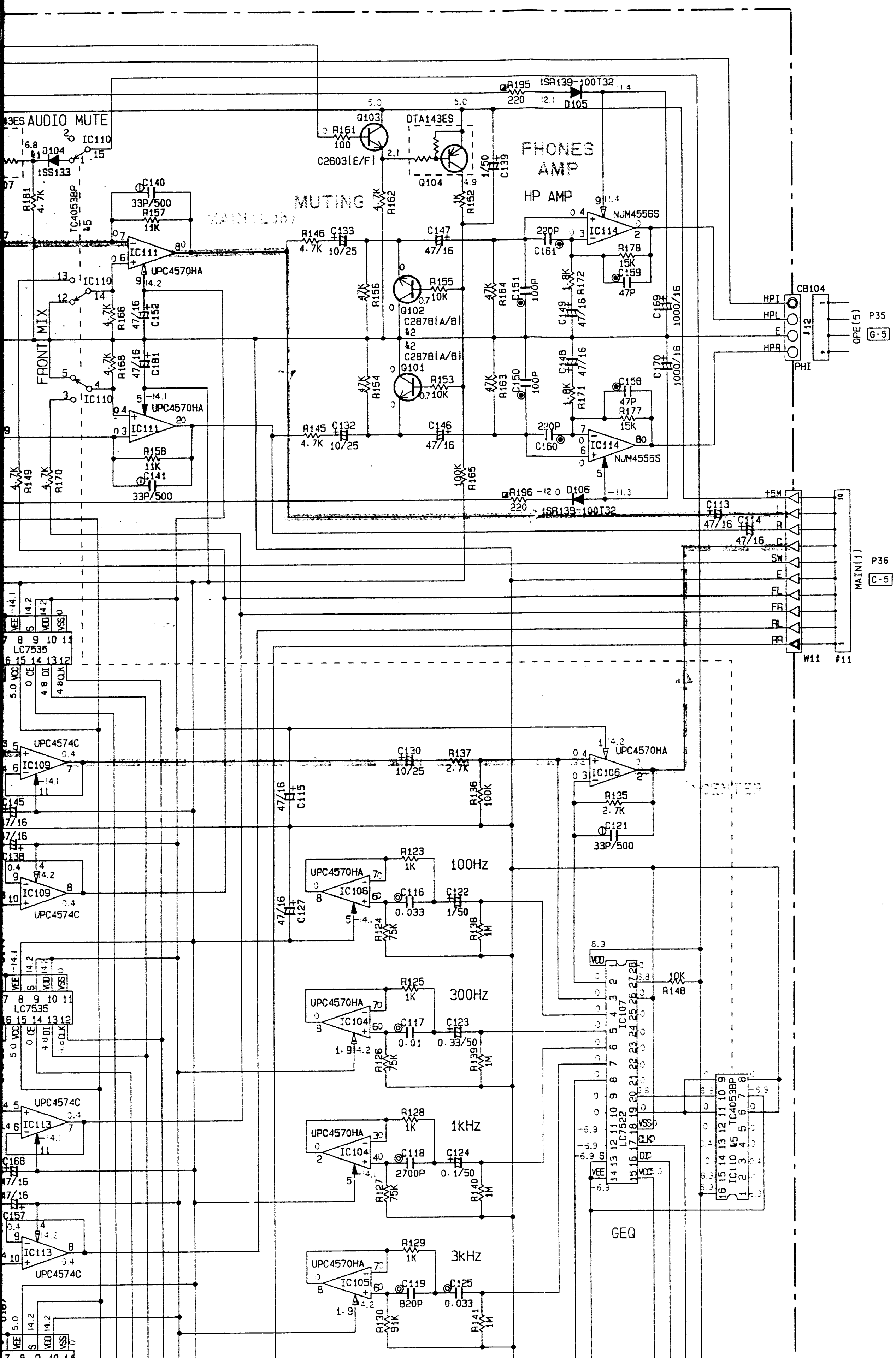


NOTE) S4, S6, S7, S8, S9, S10 : See page 34

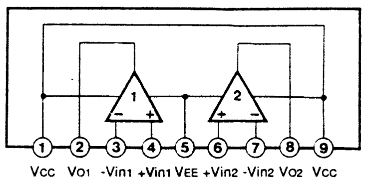
PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

2SC2878 (A, B)	2SC2603 (E, F) DTA143ES 2SD1915 (F) S, T	1SS133 HSS104TD 1SR139-100 MTZJ5.1B MTZJ6.8C	NJM4556S	µPC4570HA	µPC4574C	TC4053BP µPD4053BC	LC7535	LC7522	LC7821N LC7823N

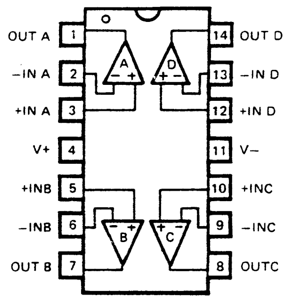




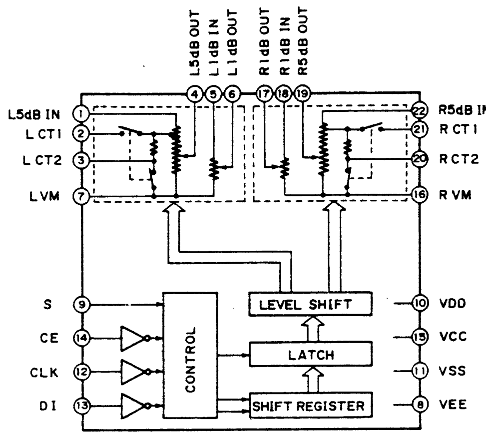
IC114 : NJM4556S
IC104~106, 111, 116 : μPC4570HA
Dual OP-Amp



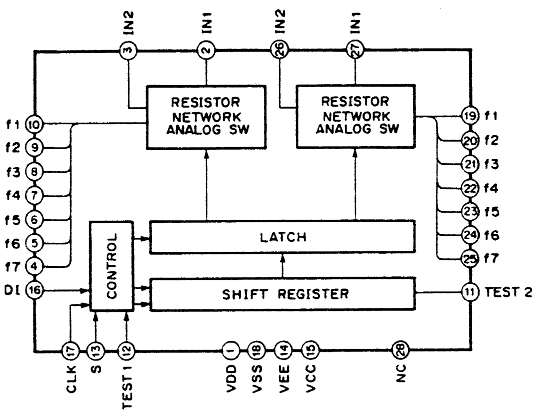
IC109, 113 : μPC4574C
4-Channel OP-Amp



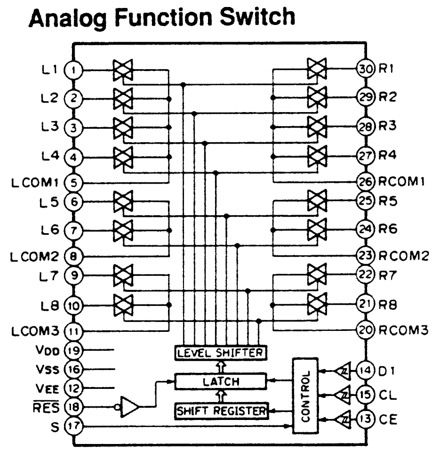
IC108, 112, 115 : LC7535
Electric Controlled Volume



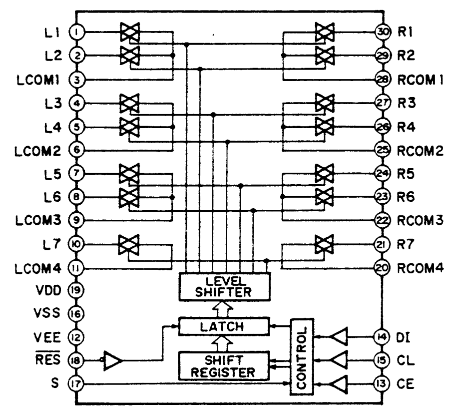
IC107 : LC7522
Graphic Equalizer



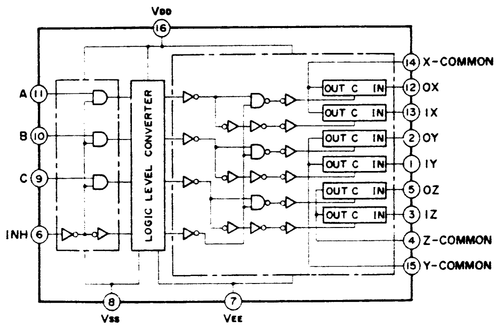
IC101, 102 : LC7821N
Analog Function Switch



IC103 : LC7823N
Analog Function Switch



IC110 : TC4053BP or μPD4053BC
Triple 2-Channel Multiplexer/Demultiplexer



CONTROL INPUTS				"ON" CHANNEL
INHIBIT (Pin 6)	C (Pin 9)	B (Pin10)	A (Pin11)	0X (Pin 12), 0Y (Pin 2), 0Z (Pin 5) 1X (Pin 13), 1Y (Pin 1), 1Z (Pin 3)
L	L	L	L	0X, 0Y, 0Z
L	L	L	H	1X, 0Y, 0Z
L	L	H	L	0X, 1Y, 0Z
L	L	H	H	1X, 1Y, 0Z
L	H	L	L	0X, 0Y, 1Z
L	H	L	H	1X, 0Y, 1Z
L	H	H	L	0X, 1Y, 1Z
L	H	H	H	1X, 1Y, 1Z
H	*	*	*	NONE

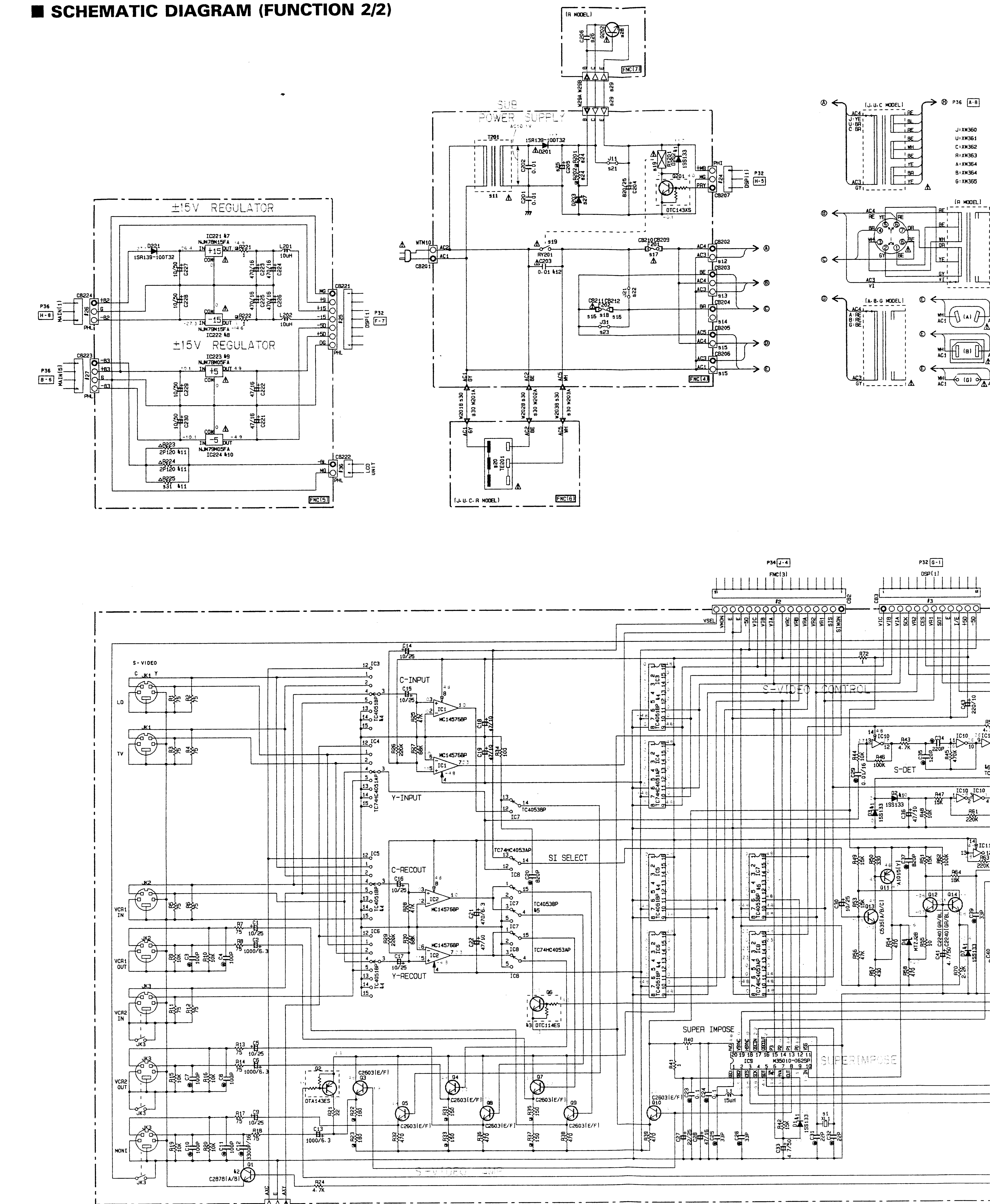
* Don't Care

Conditions

- INPUT → LD
- INPUT TRIM → 0dB
- REC OUT → SOURCE
- PROGRAM → No.1 CONCERT HALL 1 (Hall A in Europe)

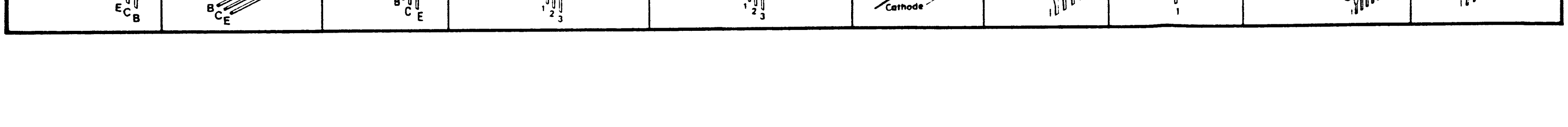
- *All voltage are measured with a 10MΩ/V DC electric volt meter.*
- *Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.*
- *Schematic diagram is subject to change without notice.*

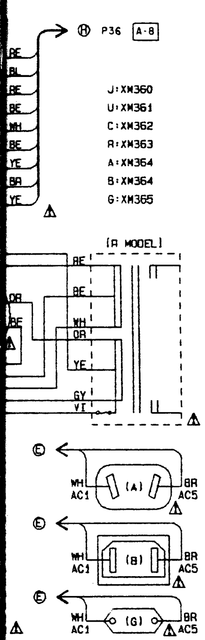
■ SCHEMATIC DIAGRAM (FUNCTION 2/2)



PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

2SA1015 (Y) 2SC535 (A, B, C) 2SC2240 (GR, BL) 2SC2878 (A, B)	2SC2603 (E, F) DTA143ES DTC143XS DTC114ES UN4211 2SD1915 (F) S, T	2SC3852	NJM78M15FA AN78M15F NJM78M05FA AN78M05F	NJM79M05FA AN79M05F NJM79M15FA AN79M15F	1SS133 HSS104TD 1SR139-100 MTZJ2.0B MTZJ13.0A	MC14576BP	TC4069UBP µPD4069C	TC4051BP µPD4051BC TC4053BP µPD4053BC TC74HC4051AP TC74HC4053AP	M35010-062SP





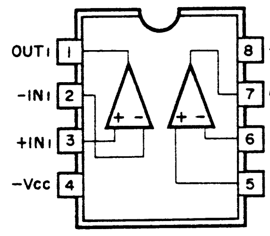
s	RefN	J	U.C	R	A.B	G
1	XL1	14.3MHZ	14.3MHZ	14.3MHZ	17.7MHZ	17.7MHZ
2	PJB1	VK17720	VJ69590	VJ69590	VJ69590	VJ69590
3	PJB2	VQ12010	VM75050	VM75050	VM75050	VM75050
4	PJ101-103	VK17740	VJ69630	VJ69630	VJ69630	VJ69630
5	R106.107	470K	47K	47K	47K	47K
6	CB106	VB99480	×	×	×	×
7	CB107	VA25230	×	×	×	×
8	J1.2	×	○	○	○	○
9	R121.122	~#3150:3.3 #3151~:100	×	×	×	×
10	SW101	×	×	VM61970	×	×
11	T201	XI480A0	XI481A0	XI790A0	XI482A0	XI483A0
12	CB202	LA00214	LA00214	×	×	×
13	CB203	×	×	LA00215	×	×
14	CB204	×	×	LA00211	×	×
15	CB205.206	×	×	×	LA00214	LA00214
16	CB211.212	×	×	LB20188	×	LB20188
17	F201	7A 250V	8A 250V	7A 250V	3.15A250V	3.15A250V
18	F202	×	×	3.15A250V	×	2.5A 250V
19	RY201	TV-8	TV-8	TV-8	TV-5	TV-5
20	TE201	VP92400	VP92400	VP92400	×	×
21	J11	○	○	×	○	○
22	J21	×	×	×	○	○
23	J31	×	×	×	○	×
24	R201.202	×	×	5.6K	×	×
25	C205	×	×	47/63	×	×
26	C206	×	×	1000P	×	×
27	D203	×	×	MTZJ13A	×	×
28	Q202	×	×	C3852	×	×
29	W29	×	×	○	×	×
30	W201-203	○	○	○	×	×
31	R225	2P150	2P120	2P150	2P150	2P150
**	PWB	XM394	XM395	XM396	XM397	XM398
**	PCB	VQ14180	VQ14190	VQ14200	VQ14210	VQ14220

NOTE) X : OPEN
○ : USE

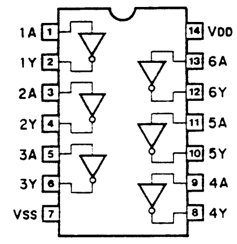
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1	D1-3.5-9.104.107.108.202	1SS133 HSS104TD
&2	Q1.101.102.105.106	2SC2878(A/B) 2SD1915(S/T)
&3	Q6	DTC114ES UN4211
&4	IC3.5.6.82	TC4051BP UPD4051BC
&5	IC7.110	TC4053BP UPD4053BC
&6	IC10.11	TC4069UBP UPD4069UBC
&7	IC221	NJM78M15FA AN78M15F
&8	IC222	NJM79M15FA AN79M15F
&9	IC223	NJM78M05FA AN78M05F
&10	IC224	NJM79M05FA AN79M05F
&11	R223-225	HL22*** HL72***
&12	C203	FI41410 FI51410

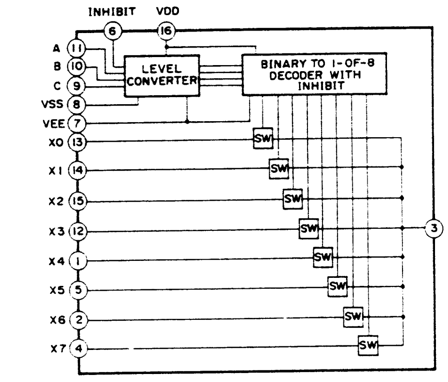
IC1, 2, 81 : MC14576BP
Dual Video Amp



IC10, 11 : TC4069UBP or μPD4069C
Hex Inverters



IC3, 5, 6, 82 : TC4051BP or μPD4051BC
IC4, 83 : TC74HC4051AP
Single 8-Channel Multiplexer/Demultiplexer



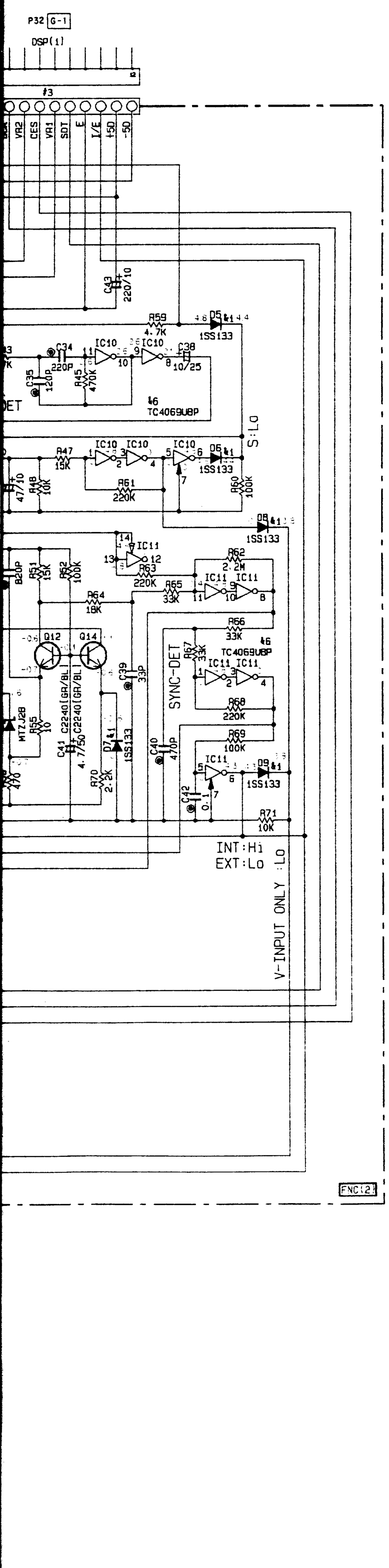
INPUT STATES				"ON" CHANNEL (S)
INHIBIT	C	B	A	
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	x	x	x	NONE

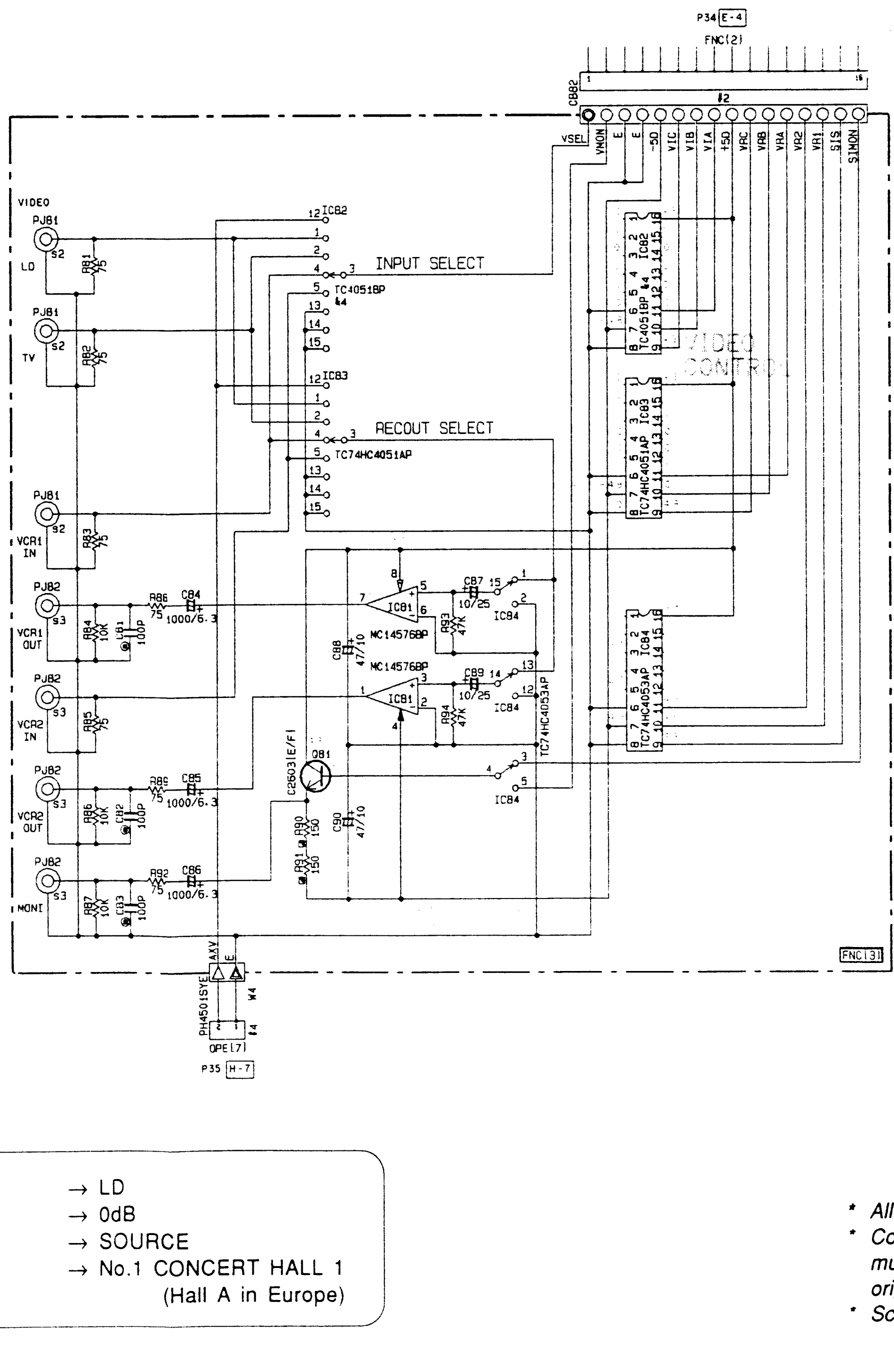
RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
◩	CARBON FILM RESISTOR (1/4W)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

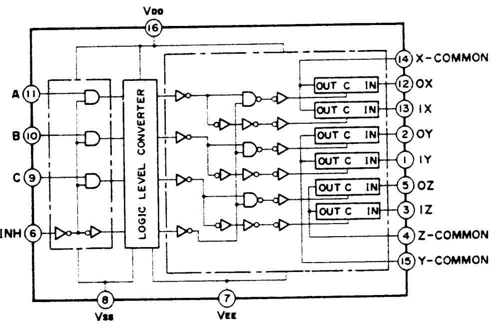
CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	AXIAL LEAD CERAMIC CAPACITOR
◎	POLYESTEL FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⦶	MICA CAPACITOR
Ⓟ	POLYPROPYLENE FILM CAPACITOR
⊖	SEMICONDUCTIVE CERAMIC CAPACITOR





IC7 : TC4053BP or μPD4053BC
IC8, 84 : TC74HC4053AP
Triple 2-Channel Multiplexer/Demultiplexer



CONTROL INPUTS				"ON" CHANNEL
INHIBIT (Pin 6)	C (Pin 9)	B (Pin10)	A (Pin11)	0X (Pin 12), 0Y (Pin 2), OZ (Pin 5) 1X (Pin 13), 1Y (Pin 1), 1Z (Pin 3)
L	L	L	L	0X, 0Y, 0Z
L	L	L	H	1X, 0Y, 0Z
L	L	H	L	0X, 1Y, 0Z
L	L	H	H	1X, 1Y, 0Z
L	H	L	L	0X, 0Y, 1Z
L	H	L	H	1X, 0Y, 1Z
L	H	H	L	0X, 1Y, 1Z
L	H	H	H	1X, 1Y, 1Z
H	*	*	*	NONE

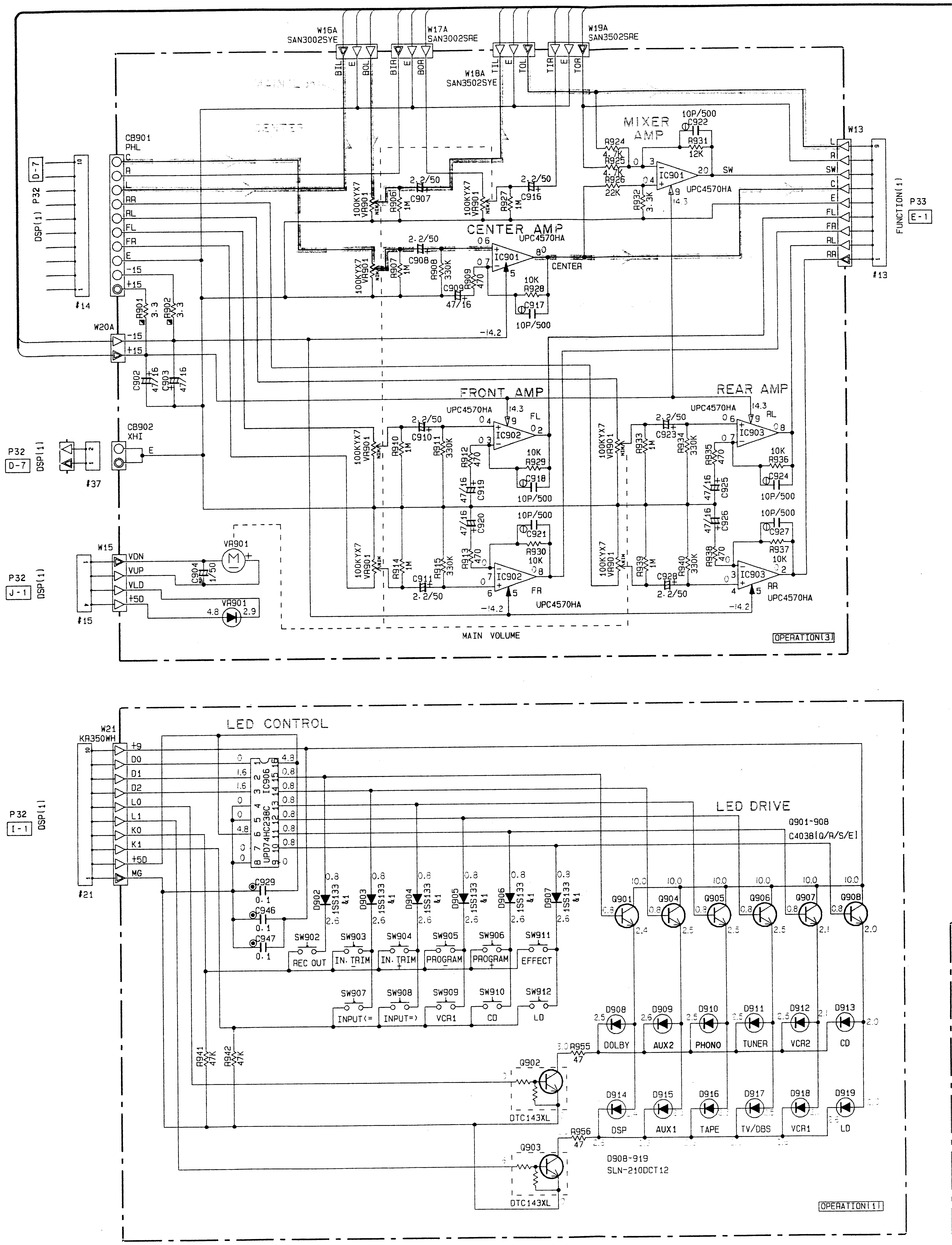
* Don't Care

Conditions

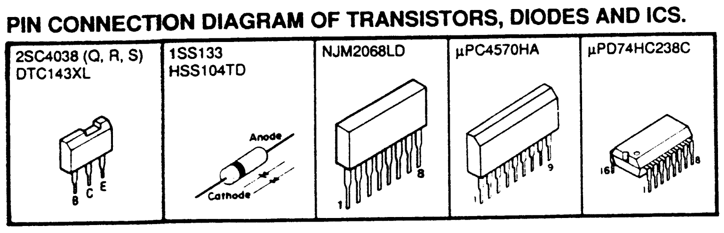
- INPUT → LD
- INPUT TRIM → 0dB
- REC OUT → SOURCE
- PROGRAM → No.1 CONCERT HALL 1 (Hall A in Europe)

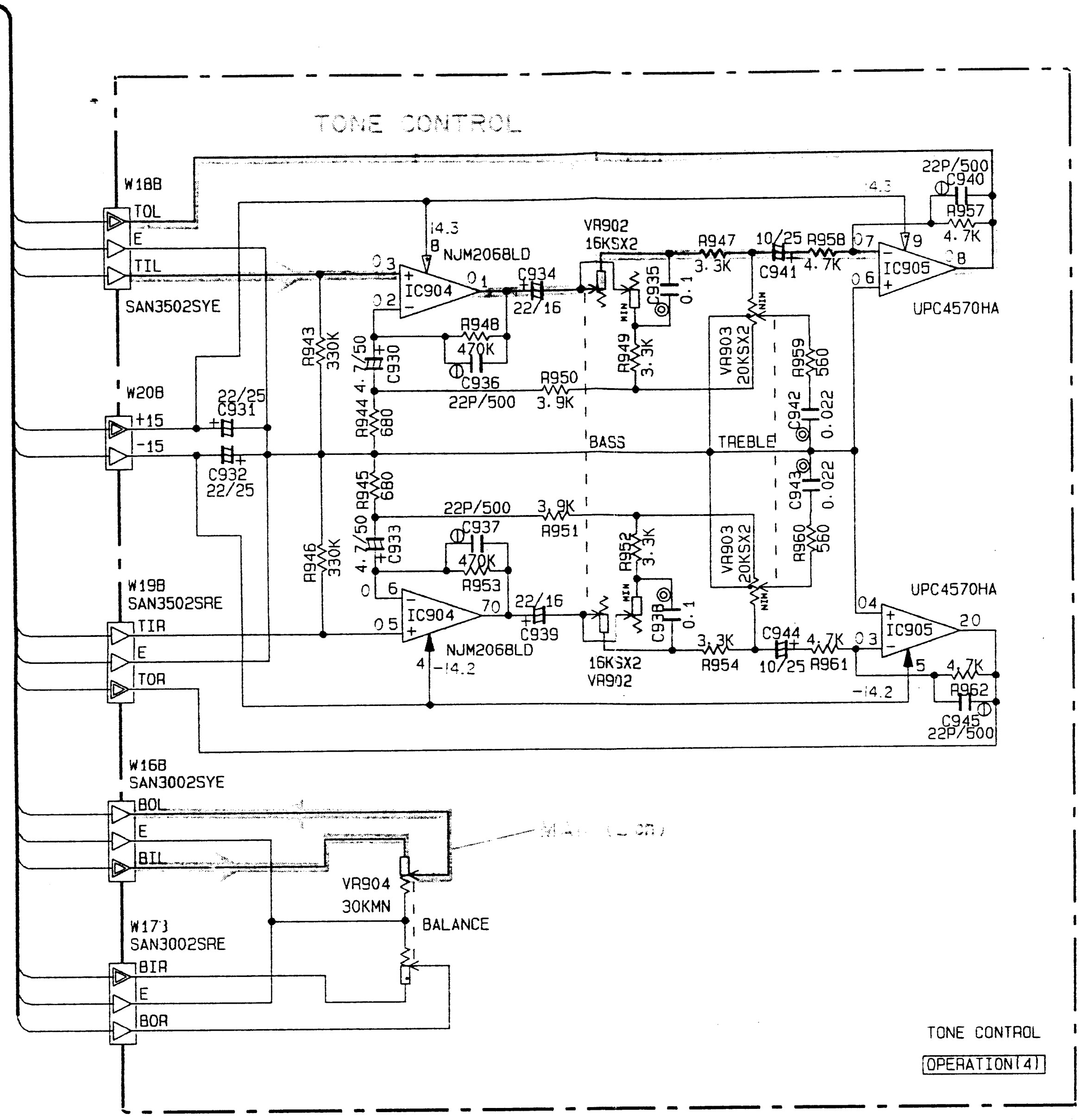
- *All voltage are measured with a 10MΩ/V DC electric volt meter.*
- *Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.*
- *Schematic diagram is subject to change without notice.*

■ SCHEMATIC DIAGRAM (OPERATION)

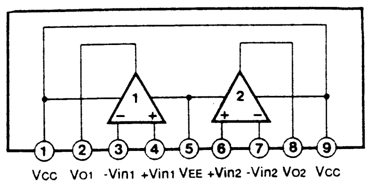


PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

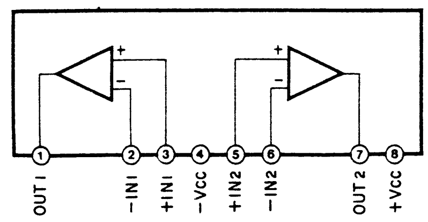




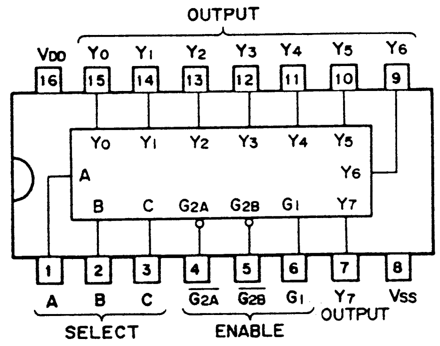
IC901~903, 905 : μPC4570HA
Dual OP-Amp



IC904 : NJM2068LD
Dual OP-Amp



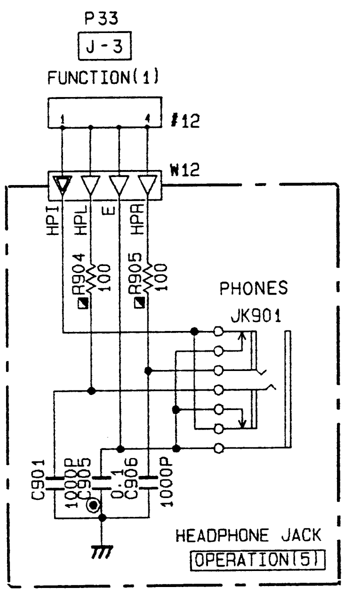
IC906 : μPD74HC238C
3 to 8 Line Decoder/Demultiplexer

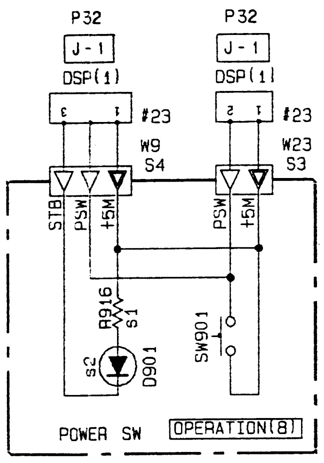


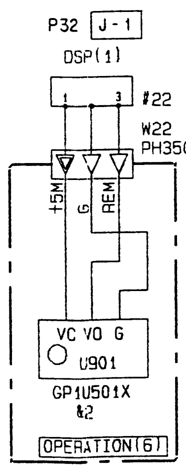
Truth Table

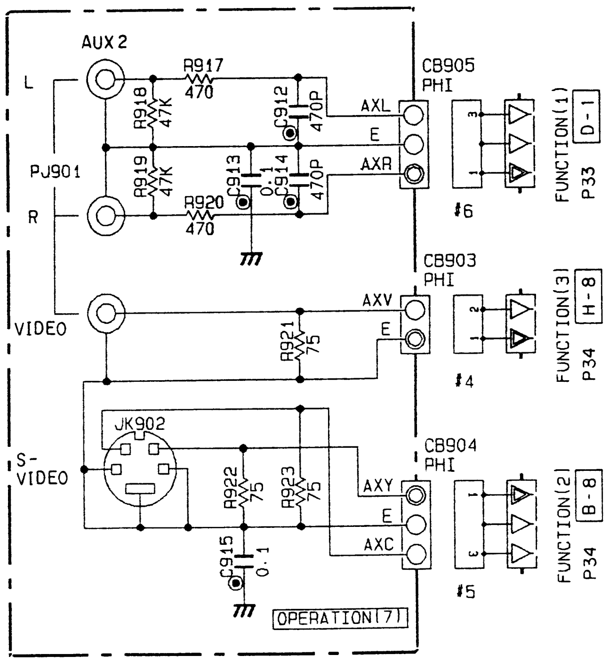
INPUT					OUTPUT							
ENABLE		SELECT										
G_1	G_2*	C	B	A	Y_0	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6	Y_7
X	H	X	X	X	L	L	L	L	L	L	L	L
L	X	X	X	X	L	L	L	L	L	L	L	L
H	L	L	L	L	H	L	L	L	L	L	L	L
H	L	L	L	H	L	H	L	L	L	L	L	L
H	L	L	H	L	L	L	H	L	L	L	L	L
H	L	L	H	H	L	L	L	H	L	L	L	L
H	L	H	L	L	L	L	L	L	H	L	L	L
H	L	H	L	H	L	L	L	L	L	H	L	L
H	L	H	H	L	L	L	L	L	L	L	H	L
H	L	H	H	H	L	L	L	L	L	L	L	H

$\overline{G_2}$* = $\overline{G_2A}$ X $\overline{G_2B}$
H: HIGH LEVEL L: LOW LEVEL X: H or L









s	Parts Number	J.U.C.R.A.B	G
1	R916	X	560
2	D901	X	SLR-34VC3H3
3	W23	O	X
4	W9	X	O
**	PWB	XM399	XM399
**	PCB	VQ14230	VQ14240

NOTE) X : OPEN
O : USE

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
*1	D902~907	1SS133 HSS104TD
*2	U901	GP1U501X GP1U571X

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
☒	CARBON FILM RESISTOR (1/4W)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
▤	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
◉	AXIAL LEAD CERAMIC CAPACITOR	
◎	POLYESTEL FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
⦶	MICA CAPACITOR	
ⓟ	POLYPROPYLENE FILM CAPACITOR	
⊜	SEMICONDUCTIVE CERAMIC CAPACITOR	

Conditions
- INPUT → LD
- INPUT TRIM → 0dB
- REC OUT → SOURCE
- PROGRAM → No.1 CONCERT HALL 1 (Hall A in Europe)

- *All voltage are measured with a 10MΩ/V DC electric volt meter.*
- *Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.*
- *Schematic diagram is subject to change without notice.*

■ SCHEMATIC DIAGRAM (MAIN)

		J	U.C.R	A.B	G
1	C416.417.420 422-425	X	X	X	0.01/100
2	C418.419.421 430-433	X	X	X	0.022
3	R518-524	X	X	X	2.2
4	F301.302	7A250V	7A125V	T6.3AL250V	T6.3AL250V
5	TE301.302	VK17660	VJ79260	VJ79260	VK17890
7	PJ301	VL55250	VL55260	VL55260	VL55260
9	PJ302.303	X	VJ13360	VJ13360	VJ13360
11	R307	1P120	1P120	1P120	1P120
15	C346.350.354	15P/500	15P/500	15P/500	22P/500
21	J501-504	O	X	X	X
22	J511-519	X	O	O	O
23	C326-329	X	470P/100	470P/100	470P/100
24	R340-343	X	220	220	220
25	R539-543	X	X	X	220
26	C434.436-439	X	X	X	3300P
27	J531-535	O	O	O	X
**	PWB	XM400	XM401	XM402	XM402
**	PCB	VQ14250	VQ14260	VQ14270	VQ14280

NOTE) X : OPEN
O : USE

NOTICE
(J)····· Japanese model
(U)····· U.S.A model
(C)····· Canadian model
(A)····· Australian model
(G)····· European model
(B)····· British model
(R)····· General model
(P)····· RP model

RESISTOR

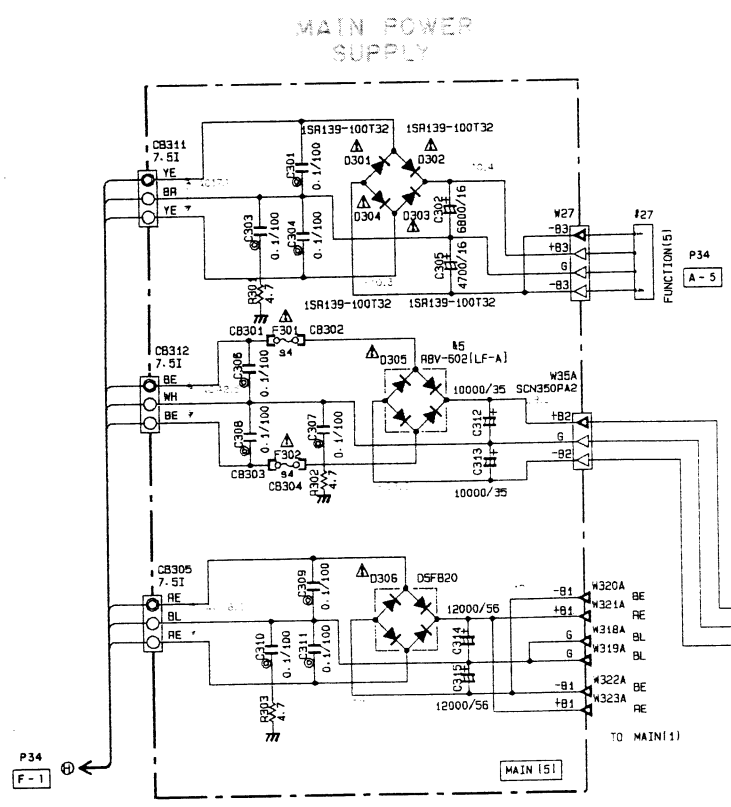
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/6W)
◪	CARBON FILM RESISTOR (1/4W)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◩	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

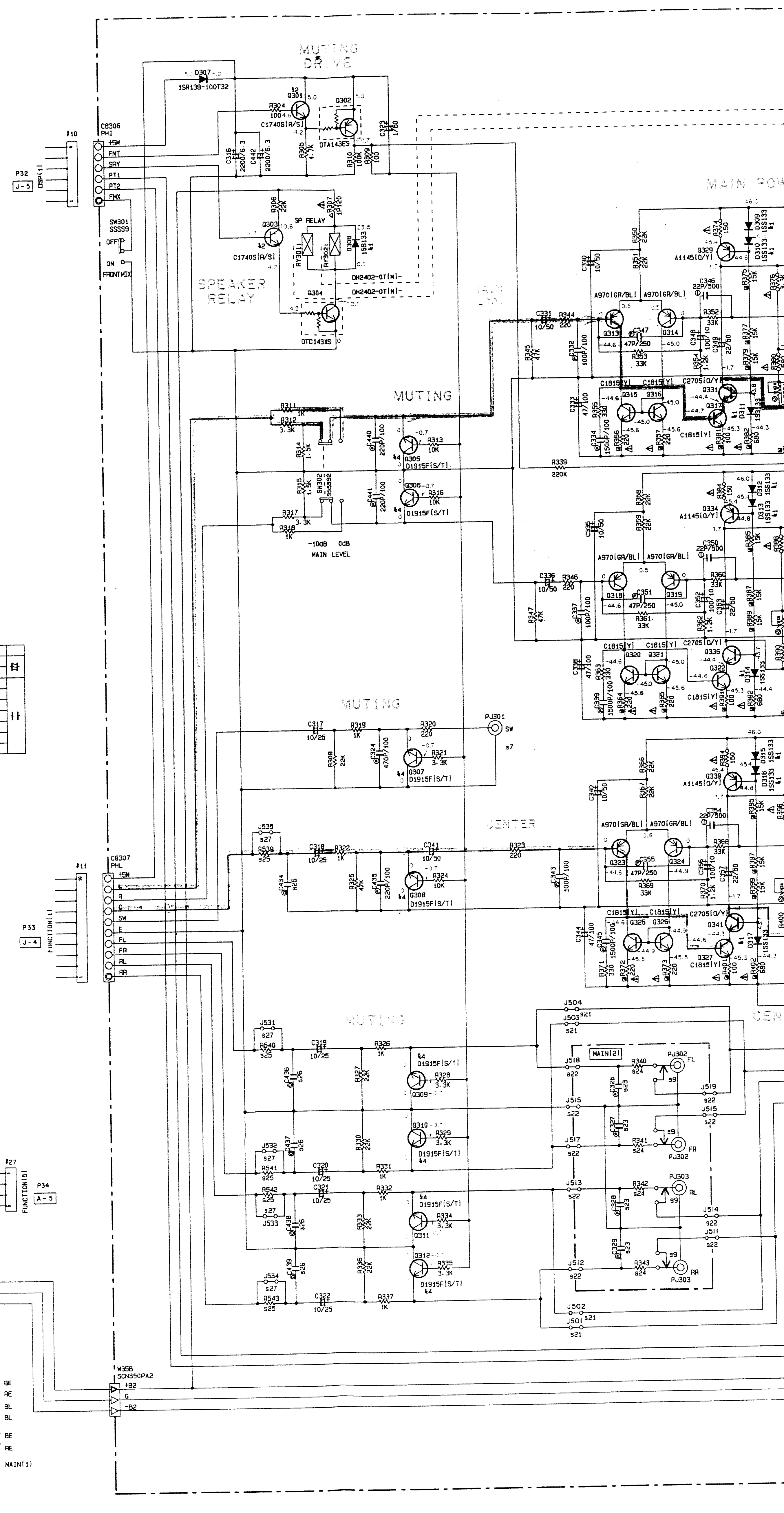
CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	╪
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	⊣⊢
◉	AXIAL LEAD CERAMIC CAPACITOR	
◎	POLYESTEL FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
Ø	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTIVE CERAMIC CAPACITOR	

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
♮1	D308-319.322-325	1SS133 HSS104TD
♮2	Q301.303	2SC1740S(R/S) 2SC2603(E/F) 2SC3311A(Q/R/S)
♮3	Q345.350.355.361-364 381-384	2SC2459(GR/BL) 2SC2240(GR/BL)
♮4	Q305-312	2SD1915F(S/T) 2SC2878(A/B)
♮5	D305	RBV-602(LF-4) D5SBA20



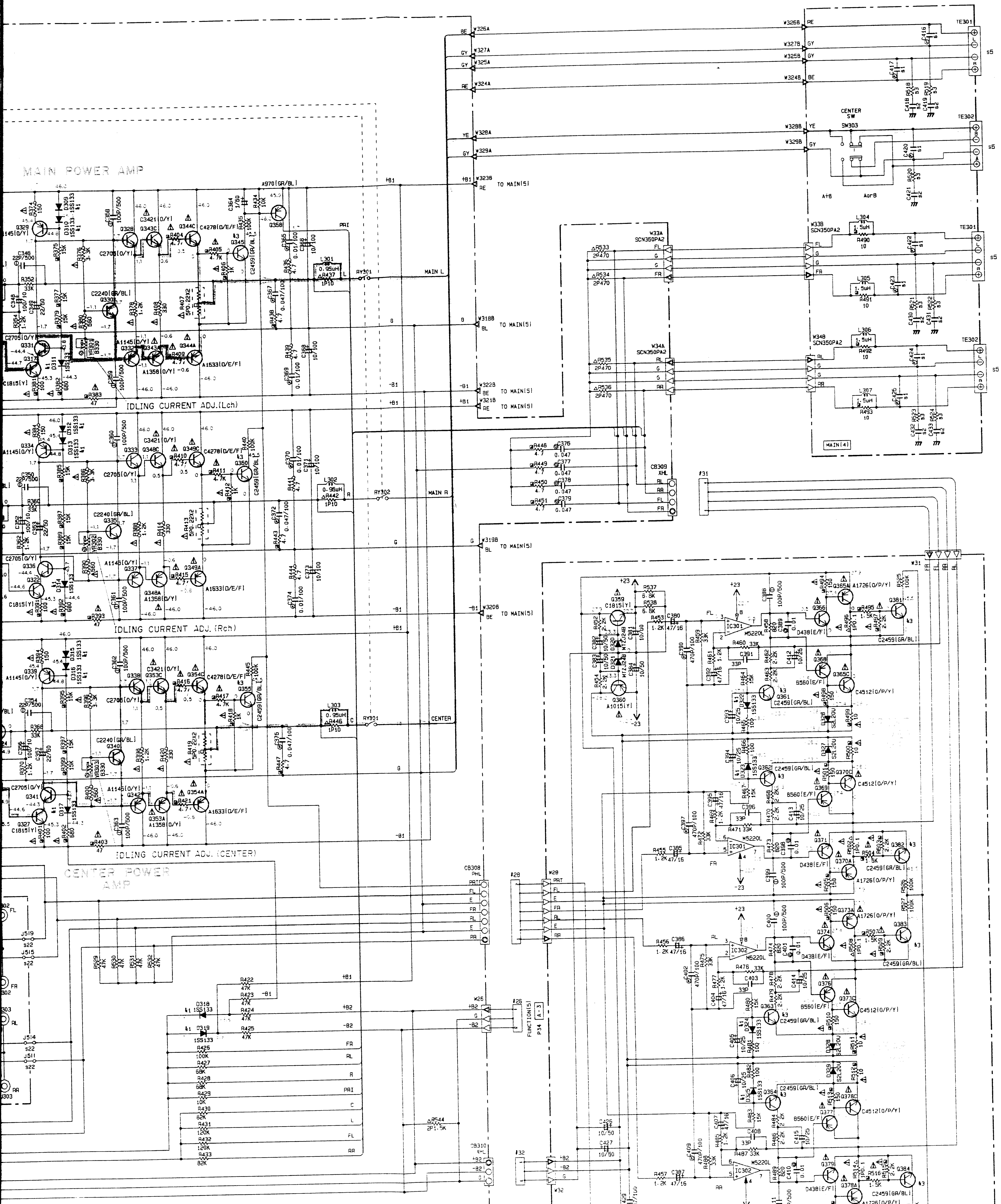


PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

2SA970 (GR, BL) 2SA1015 (Y) 2SA1145 (O, Y) 2SB560 (E, F) 2SC1815 (Y) 2SC2240 (GR, BL) 2SC2705 (O, Y) 2SC2459 (GR, BL) 2SD438 (E, F) 2SC2878 (A, B)	2SC1740S (R, S) 2SC2603 (E, F) 2SC3311A (Q, R, S) 2SD1915 (F) S, T DTA143ES DTC143XS	2SA1726 (O, P, Y) 2SC4512 (O, P, Y)	2SA1358 (O, Y) 2SC3421 (O, Y)	2SA1633 (D, E, F) 2SC4278 (D, E, F)	1SS133 HSS104TD 1SR139-100 S2L20U MTZJ24.0B	D5FB20	RBV-602 D5SBA20

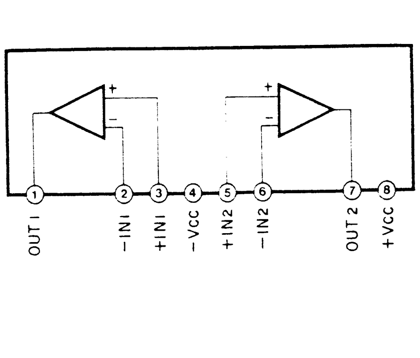
Conditions

- INPUT → LD
- INPUT TRIM → 0dB
- REC OUT → SOURCE
- PROGRAM → No.1 CONCERT H
(Hall A in E



LD
0dB
SOURCE
No.1 CONCERT HALL 1
(Hall A in Europe)

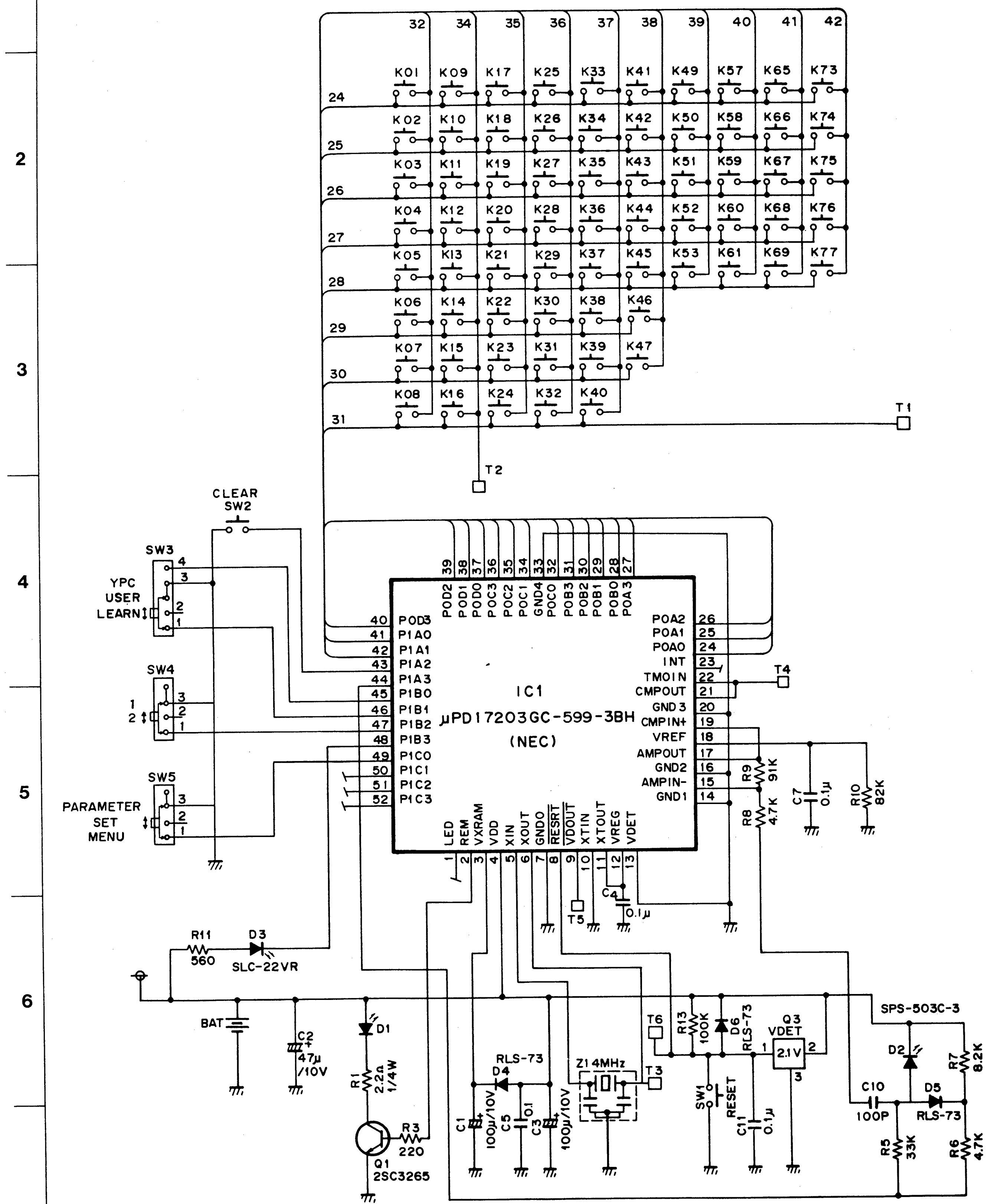
IC301, 302 : M5220L
Dual OP-Amp

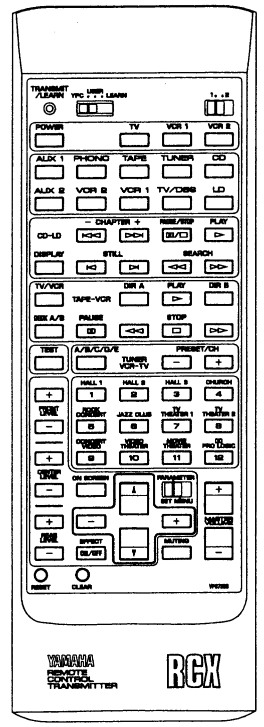


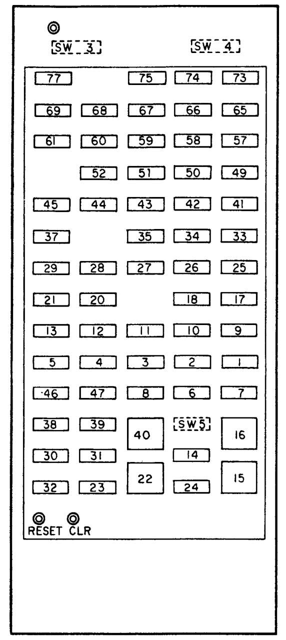
- All voltage are measured with a 10MΩ/V DC electric volt meter.
- Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
- Schematic diagram is subject to change without notice.

REMOTE CONTROL TRANSMITTER

■ SCHEMATIC DIAGRAM







KEY No.	CONTROL CODE		FUNCTION
SW 4	1	2	
77	7D-8F	←	POWER
75	—	←	TV
74	—	←	VCR 1
73	—	←	VCR 2
69	7D-8A	←	INPUT AUX 1
68	7D-88	←	PHONO
67	7D-8B	←	TAPE
66	7D-89	←	TUNER
65	7D-87	←	CD
61	7D-85	←	AUX 2
60	7D-82	←	VCR 2
59	7D-81	←	VCR 1
58	7D-84	←	TV/DBS
57	7D-83	←	LD
52	7A-0B	7C-02	SKIP/CHAPTER –
51	7A-0A	7C-03	SKIP/CHAPTER +
50	7A-09	7C-04	PAUSE/STOP
49	7A-08	7C-05	PLAY
45	7A-0A	7C-13	DISPLAY
44	—	7C-0A	STILL ⧏

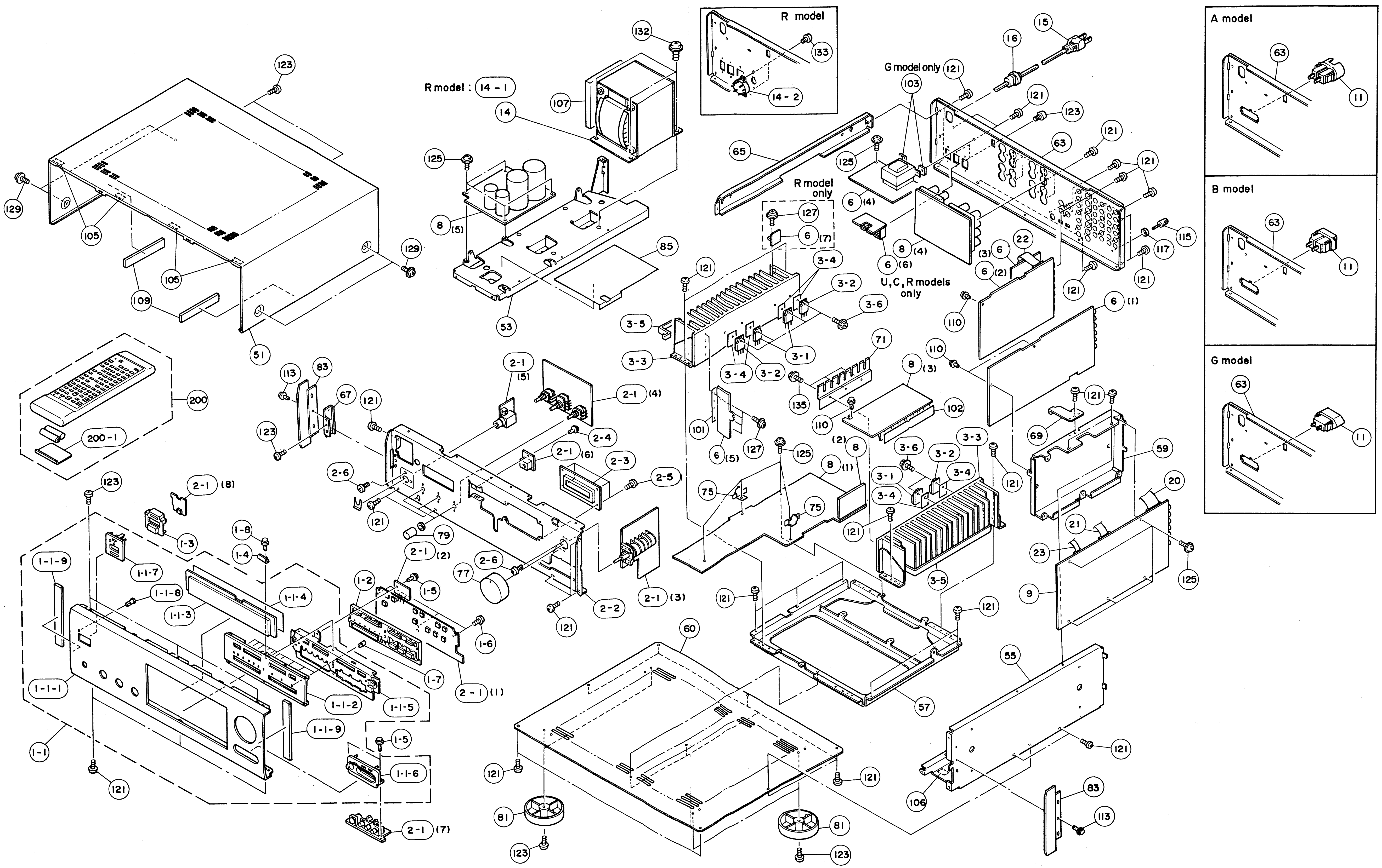
KEY No.	CONTROL CODE		FUNCTION
SW 4	1	2	
43	—	7C-0B	STILL ⧐
42	7A-0D	7C-06	SEARCH ◀◀
41	7A-0C	7C-07	SEARCH ▶▶
37	—	←	TV/VCR
35	7A-07	←	DIR A
34	7A-00	←	PLAY
33	7A-40	←	DIR B
29	7A-06	←	DECK A/B
28	—	←	PAUSE
27	7A-01	←	◀◀
26	7A-03	←	STOP
25	7A-02	←	▶▶
21	7D-CA	←	TEST
20	7A-12	←	TUNER A/B/C/D/E
18	7A-11	←	PRESET –
17	7A-10	←	PRESET +
13	7D-CD	←	FRONT LEVEL +
12	7D-D0	←	PROGRAM 1
11	7D-D1	←	PROGRAM 2
10	7D-D2	←	PROGRAM 3

KEY No.	CONTROL CODE		FUNCTION
SW 4	1	2	
9	7D-D3	←	PROGRAM 4
5	7D-CE	←	FRONT LEVEL –
4	7D-D4	←	PROGRAM 5
3	7D-D5	←	PROGRAM 6
2	7D-D6	←	PROGRAM 7
1	7D-D7	←	CENTER LEVEL +
46	7D-CB	←	PROGRAM 8
47	7D-D8	←	PROGRAM 9
8	7D-D9	←	PROGRAM 10
6	7D-DA	←	PROGRAM 11
7	7D-DB	←	PROGRAM 12
38	7D-CC	←	CENTER LEVEL –
39	7D-C2	←	ON SCREEN
16	7D-8D	←	MASTER VOLUME +
30	7D-C8	←	REAR LEVEL +
32	7D-C9	←	REAR LEVEL –
23	7D-C1	←	EFFECT ON/OFF
24	7D-94	←	MUTING -20dB
15	7D-8E	←	MASTER VOLUME –

KEY No.	CONTROL CODE		FUNCTION
SW 5	PARAMETER	SET MODE	
40	7D-C5	7D-9D	PARAMETER SET MENU ↑
31	7D-C7	7D-9F	PARAMETER SET MENU –
14	7D-C6	7D-9E	PARAMETER SET MENU +
22	7D-C4	7D-9C	PARAMETER SET MENU ↓

A	B	C	D	E	F	G	H

■ EXPLODED VIEW



■ MECHANICAL PARTS **Note) Ø : Diameter**

	Ref. No.	PART NO.	Description		Remarks	Markets
*	1-1	VQ143900	FRONT PANEL ASS'y		BL	(UCRAB)
*	1-1	VQ144000	FRONT PANEL ASS'y		BL	(G)
*	1-1	VQ146500	FRONT PANEL ASS'y		TI	(G)
*	1-1-1	VP869400	FRONT PANEL		BL	(UCRAB)
*	1-1-1	VP869600	FRONT PANEL		BL	(G)
*	1-1-1	VP869700	FRONT PANEL		TI	(G)
*	1-1-2	VP870000	SUB PANEL		BL	
*	1-1-2	VP870100	SUB PANEL		TI	
*	1-1-3	VP870400	WINDOW PANEL			
*	1-1-4	VP993400	SHEET, WINDOW	PVC1.5		
*	1-1-5	VP870500	FRAME			
*	1-1-6	VP868300	ESCUTCHEON		BL	
*	1-1-6	VP868400	ESCUTCHEON		TI	
*	1-1-7	VP868800	BUTTON GUIDE		BL	
*	1-1-7	VP868900	BUTTON GUIDE		TI	
	1-1-8	VH897700	LENS	2.2Lx2.2		(G)
*	1-1-9	VQ363700	CUSHION, SIDE			
*	1-2	VP870200	BUTTON CASE		BL	
*	1-2	VP870300	BUTTON CASE		TI	
*	1-3	VP868500	BUTTON		BL	
*	1-3	VP868600	BUTTON		TI	
*	1-4	VQ321200	SUPPORT, WINDOW			
	1-5	CB605620	PLASTIC RIVET	No.1781		
	1-6	Ei330086	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL		
	1-7	Vi777100	LENS			
	1-8	CB068880	PLASTIC RIVET	No.1027		
*	2-1	VQ142300	P.C.B. ASS'y OPERATION			(UCRAB)
*	2-1	VQ142400	P.C.B. ASS'y OPERATION			(G)
*	2-2	VP866800	SUB CHASSIS			
*	2-3	VP332900	LCD	DM061Y-7DL3		
	2-4	CB605620	PLASTIC RIVET	No.1781		
	2-5	VC298900	BIND HEAD B-TITE SCREW	2.6x6 +/- FCRM3-BL		
	2-6	EX601890	BIND HEAD BONDING SCREW	3x6 FCRM3-BL		
⚠	3-1	iX632650	TRANSISTOR	2SA1633 D,E,F	Q344A,349A,354A	
⚠	3-2	iX632660	TRANSISTOR	2SC4278 D,E,F	Q344C,349C,354C	
*	3-3	VP868200	HEAT SINK			
	3-4	VK195900	SHEET	19x24		
	3-5	VK706700	DAMPER	FIN		
	3-6	VK173200	SCREW, TRANSISTOR	3x15 SP FCM3		
*	6	VQ141900	P.C.B. ASS'y FUNCTION			(UC)
*	6	VQ142000	P.C.B. ASS'y FUNCTION			(R)
*	6	VQ142100	P.C.B. ASS'y FUNCTION			(AB)
*	6	VQ142200	P.C.B. ASS'y FUNCTION			(G)
*	8	VQ142600	P.C.B. ASS'y MAIN			(UCR)
*	8	VQ142700	P.C.B. ASS'y MAIN			(AB)
*	8	VQ142800	P.C.B. ASS'y MAIN			(G)
*	9	VQ143000	P.C.B. ASS'y DSP			(UC)
*	9	VQ143100	P.C.B. ASS'y DSP			(R)
*	9	VQ143200	P.C.B. ASS'y DSP			(AB)
*	9	VQ143300	P.C.B. ASS'y DSP			(G)
⚠	11	VJ775000	AC OUTLET	2P		(B)
⚠	11	VJ775100	AC OUTLET	S2-729T		(A)
⚠	11	VP418700	AC OUTLET	2P		(G)

⋆ New Parts

	Ref. No.	PART NO.	Description		Remarks	Markets
⚠*	14	XM361A00	POWER TRANSFORMER			(U)
⚠*	14	XM362A00	POWER TRANSFORMER			(C)
⚠*	14	XM364A00	POWER TRANSFORMER			(AB)
⚠*	14	XM365A00	POWER TRANSFORMER			(G)
⚠*	14-1	XM363A00	POWER TRANSFORMER			(R)
⚠	14-2	Vi449800	VOLTAGE SELECTOR	ESE-37284-F		(R)
⚠	15	MG002220	POWER CORD	10A 125V 2.0m		(UC)
⚠	15	MG002320	POWER CORD	2.5A 250V 2.0m		(G)
⚠	15	VK815400	POWER CORD	6A 250V		(B)
⚠	15	VL948500	POWER CORD	7A 250V 2.0m		(R)
⚠	15	VP417900	POWER CORD	7.5A 250V 2.0m		(A)
	16	CB620190	CORD STOPPER	CM-22B		(RABG)
	16	CB620200	CORD STOPPER	CM-22C		(UC)
	17	CB069250	BINDING TIE	BK-1		
*	20	VQ120500	CONNECTOR, FLAT CABLE	28P 70mm		
*	21	VQ120600	CONNECTOR, FLAT CABLE	12P 70mm		
*	22	VQ157200	CONNECTOR, FLAT CABLE	16P 60mm		
*	23	VQ157100	CONNECTOR, FLAT CABLE	10P 70mm		
*	51	VP866000	TOP COVER		BL	
*	51	VP866100	TOP COVER		TI	
*	53	VP866300	FRAME	L		
*	55	VP866400	FRAME	R		
*	57	VP866500	FRAME	CENTER		
*	59	VP866900	SHIELD CASE			
*	60	VP866200	BOTTOM COVER			
*	61	VQ199200	SIDE PANEL			
*	63	VP867500	REAR PANEL			(UC)
*	63	VP867600	REAR PANEL			(R)
*	63	VP867700	REAR PANEL			(AB)
*	63	VP867800	REAR PANEL			(G)
*	65	VP866700	FRAME	SIDE		
*	67	VP867000	SUPPORT	SIDE		
*	69	VP867100	SUPPORT	PCB		
*	71	VP867200	SUPPORT	TR		
	75	VK839200	TR. PUSHER			
	77	VK015100	KNOB, LED	Ø45	BL VOLUME	
	77	VL864400	KNOB, LED	Ø45	TI VOLUME	
	79	VP511700	KNOB	Ø14	BL BAS.TRE.BAL.	
*	79	VQ042400	KNOB	Ø14	TI BAS.TRE.BAL.	
	81	VK016500	LEG	Ø60xH21		
	83	VK234600	PLATE SIDE		BL	
	83	VK234700	PLATE SIDE		TI	
*	85	VQ233900	SHIELD PLATE			
*	101	VP869100	SHEET, RADIATOR	20x57.5		
*	102	VQ746900	SHEET, RADIATOR	20x115		
	103	Vi707300	DAMPER			(G)
	105	VE222600	CUSHION			
	106	VQ354800	CUSHION	VOL		
*	107	VQ199500	DAMPER	TRANS.		
*	109	VQ988100	DAMPER	SIDE		
	110	CB605620	PLASTIC RIVET	No.1781		
	113	CB099600	PLASTIC RIVET	No.920		
	115	AA627310	GROUND TERMINAL			

⋆ New Parts

Ref. No.	PART NO.	Description		Remarks	Markets
117	EV265560	PLAIN WASHER	3.6x10x0.8FNM3-3G		
121	EN301010	BIND HEAD BONDING TAP. SCREW	3x8 FCRM3-BL		
123	Ei330086	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL		
125	EX600700	BW HEAD TAPPING SCREW	3x8 FCM3-CU		
127	EX600250	CUP B-TITE SCREW	3x10 FCRM3-BL		
129	EL300470	BW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	BL	
129	EX601150	BW HEAD S-TITE SCREW	4x8-10 FNM3-BL	TI	
132	VK625000	CUP S-TITE SCREW	5x10-12 ZMC2-Y		
133	ED330066	BIND HEAD SCREW	3x6 FCRM3-BL		(R)
135	VK173200	SCREW, TRANSISTOR	3x15 SP FCM3		
		ACCESSORIES			
* 200	VP373500	REMOTE CONTROL TRANSMITTER			
200-1	CX674400	LID	56x40.5SMK	103RRC-031-02R	
201	CX618490	SHEET, REMOTE CONTROL			
		BATTERY, MANGANESE	SUM-3,AA,R06		

* New Parts

PARTS LIST

■ ELECTRICAL PARTS

■ **WARNING**
Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.

● Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the parts No. of the carbon resistors, refer to last page.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS :

C.A.EL.CHP : CHIP ALUMI. ELECTROLYTIC CAP
C.CE : CERAMIC CAP
C.CE.ARRAY : CERAMIC CAP ARRAY
C.CE.CHP : CHIP CERAMIC CAP
C.CE.ML : MULTILAYER CERAMIC CAP
C.CE.M.CHP : CHIP MULTILAYER CERAMIC CAP
C.CE.SAFTY : RECOGNIZED CERAMIC CAP
C.CE.TUBLR : CERAMIC TUBULAR CAP
C.CE.SMI : SEMI CONDUCTIVE CERAMIC CAP
C.EL : ELECTROLYTIC CAP
C.MICA : MICA CAP
C.ML.FLM : MULTILAYER FILM CAP
C.MP : METALLIZED PAPER CAP
C.MYLAR : MYLAR FILM CAP
C.MYLAR.ML : MULTILAYER MYLAR FILM CAP
C.PAPER : PAPER CAPACITOR
C.PLS : POLYSTYRENE FILM CAP
C.POL : POLYESTER FILM CAP
C.POLY : POLYETHYLENE FILM CAP
C.PP : POLYPROPYLENE FILM CAP
C.TNTL : TANTALUM CAP
C.TNTL.CHP : CHIP TANTALUM CAP
C.TRIM : TRIMMER CAP
CN : CONNECTOR
CN.BS.PIN : CONNECTOR, BASE PIN
CN.CANNON : CONNECTOR, CANNON
CN.DIN : CONNECTOR, DIN
CN.FLAT : CONNECTOR, FLAT CABLE
CN.POST : CONNECTOR, BASE POST
COIL.MX.AM : COIL, AM MIX
COIL.AT.FM : COIL, FM ANTENNA
COIL.DT.FM : COIL, FM DETECT
COIL.MX.FM : COIL, FM MIX
COIL.OUTPT : OUTPUT COIL
DIOD.ARRAY : DIODE ARRAY
DIODE.BRG : DIODE BRIDGE
DIODE.CHP : CHIP DIODE
DIODE.VAR : VARACTOR DIODE
DIOD.Z.CHP : CHIP ZENER DIODE
DIODE.ZENR : ZENER DIODE
DSCR.CE : CERAMIC DISCRIMINATOR
FER.BEAD : FERRITE BEADS
FER.CORE : FERRITE CORE
FET.CHP : CHIP FET
FL.DSPLY : FLUORESCENT DISPLAY
FLTR.CE : CERAMIC FILTER
FLTR.COMB : COMB FILTER MODULE
FLTR.LC.RF : LC FILTER ,EMI
GND.MTL : GROUND PLATE
GND.TERM : GROUND TERMINAL
HOLDER.FUS : FUSE HOLDER
IC.PRTCT : IC PROTECTOR
JUMPER.CN : JUMPER CONNECTOR
JUMPER.TST : JUMPER, TEST POINT
L.DTCT : LIGHT DETECTING MODULE
L.EMIT : LIGHT EMITTING MODULE
LED.DSPLY : LED DISPLAY
LED.INFRD : LED, INFRARED
MODUL.RF : MODULATOR, RF
PHOT.CPL : PHOTO COUPLER
PHOT.INTR : PHOTO INTERRUPTER
PHOT.RFLCT : PHOTO REFLECTOR
PIN.TEST : PIN, TEST POINT
PLST.RIVET : PLASTIC RIVET
R.ARRAY : RESISTOR ARRAY
R.CAR : CARBON RESISTOR
R.CAR.CHP : CHIP RESISTOR
R.CAR.FP : FLAME PROOF CARBON RESISTOR
R.FUS : FUSABLE RESISTOR
R.MTL.CHP : CHIP METAL FILM RESISTOR
R.MTL.FLM : METAL FILM RESISTOR
R.MTL.OXD : METAL OXIDE FILM RESISTOR
R.MTL.PLAT : METAL PLATE RESISTOR
RSNR.CE : CERAMIC RESONATOR
RSNR.CRYS : CRYSTAL RESONATOR
R.TW.CEM : TWIN CEMENT FIXED RESISTOR
R.WW : WIRE WOUND RESISTOR
SCR.BND.HD : BIND HEAD B-TITE SCREW
SCR.BW.HD : BW HEAD TAPPING SCREW
SCR.CUP : CUP TITE SCREW
SCR.TERM : SCREW TERMINAL
SCR.TR : SCREW, TRANSISTOR
SUPRT.PCB : SUPPORT, P.C.B.
SURG.PRTCT : SURGE PROTECTOR
SW.TACT : TACT SWITCH
SW.LEAF : LEAF SWITCH
SW.LEVER : LEVER SWITCH
SW.MICRO : MICRO SWITCH
SW.PUSH : PUSH SWITCH
SW.RT.ENC : ROTARY ENCODER
SW.RT.MTR : ROTARY SWITCH WITH MOTOR
SW.RT : ROTARY SWITCH
SW.SLIDE : SLIDE SWITCH
TERM.SP : SPEAKER TERMINAL
TERM.WRAP : WRAPPING TERMINAL
THRMST.CHP : CHIP THERMISTOR
TR.CHP : CHIP TRANSISTOR
TR.DGT : DIGITAL TRANSISTOR
TR.DGT.CHP : CHIP DIGITAL TRANSISTOR
TRANS : TRANSFORMER
TRANS.PULS : PULSE TRANSFORMER
TRANS.PWR : POWER TRANSFORMER ASS'y
TUNER.AM : TUNER PACK, AM
TUNER.FM : TUNER PACK, FM
TUNER.PK : FRONT-END TUNER PACK
VR : ROTARY POTENTIOMETER
VR.MTR : POTENTIOMETER WITH MOTOR
VR.SW : POTENTIOMETER WITH ROTARY SW
VR.SLIDE : SLIDE POTENTIOMETER
VR.TRIM : TRIMMER POTENTIOMETER

Note) Those parts marked with "#" are not included in the P.C.B. ass'y.

FUNCTION P. C. B.

	Schm Ref.	PART NO.	Description	
*		VQ141900	P.C.B.	FUNCTION(UC)
*		VQ142000	P.C.B.	FUNCTION(R)
*		VQ142100	P.C.B.	FUNCTION(AB)
*		VQ142200	P.C.B.	FUNCTION(G)
*	CB2	VN923700	CN	FE 16P TE
*	CB3	VN923300	CN	FE 12P TE
*	CB82	VN923700	CN	FE 16P TE
*	CB101	VN924900	CN	FE 28P TE
*	CB102	VN923100	CN	FE 10P TE
	CB103	VD005200	CN.BS.PIN	PH i-TYPE 9P TE
	CB104	VD004700	CN.BS.PIN	PH i-TYPE 4P TE
	CB201	LA003870	TERM.WRAP	2P L-TYPE P=10
	CB202	LA002140	TERM.WRAP	2P i-TYPE P=10(UC)
	CB203	LA002150	TERM.WRAP	3P i-TYPE P=10(R)
	CB204	LA002110	TERM.WRAP	2P i-TYPE P=5 (R)
	CB205	LA002140	TERM.WRAP	2Pi-TYPE P=10(ABG)
	CB206	LA002140	TERM.WRAP	2Pi-TYPE P=10(ABG)
	CB207	VD004600	CN.BS.PIN	PH i-TYPE 3P TE
	CB209	LB201880	HOLDER.FUS	PC-FH1
	CB210	LB201880	HOLDER.FUS	PC-FH1
	CB211	LB201880	HOLDER.FUS	PC-FH1(RG)
	CB212	LB201880	HOLDER.FUS	PC-FH1(RG)
	CB221	VB858600	CN.BS.PIN	PH L-TYPE 7P SE
	CB222	VB858100	CN.POST	PH 2P SE
	CB223	VB858300	CN.POST	PH 4P SE
	CB224	VB858200	CN.BS.PIN	PH L-TYPE 3P SE
	C1	Vi845900	C.EL	10uF 63V
	C2	Vi841400	C.EL	1000uF 6.3V
	C3	VF466800	C.CE.TUBLR	100pF 50V
	C4	VF466800	C.CE.TUBLR	100pF 50V
	C5	Vi845900	C.EL	10uF 63V
	C6	Vi841400	C.EL	1000uF 6.3V
	C7	VF466800	C.CE.TUBLR	100pF 50V
	C8	VF466800	C.CE.TUBLR	100pF 50V
	C9	Vi845900	C.EL	10uF 63V
	C10	VF466800	C.CE.TUBLR	100pF 50V
	C11	VF466800	C.CE.TUBLR	100pF 50V
	C12	VG279600	C.CE.TUBLR	3300pF 16V
	C13	Vi841400	C.EL	1000uF 6.3V
	C14	Vi845900	C.EL	10uF 63V
	C15	Vi845900	C.EL	10uF 63V
	C16	Vi845900	C.EL	10uF 63V
	C17	Vi845900	C.EL	10uF 63V
	C18	Vi845600	C.EL	47uF 50V
	C19	Vi845600	C.EL	47uF 50V
	C20	VG279000	C.CE.TUBLR	820pF 50V
	C21	Vi841300	C.EL	470uF 6.3V
	C22	Vi845600	C.EL	47uF 50V
	C23	VJ599100	C.CE.TUBLR	0.1uF 50V
	C24	VJ599100	C.CE.TUBLR	0.1uF 50V
	C25	VG277000	C.CE.TUBLR	33pF 50V
	C26	VG277000	C.CE.TUBLR	33pF 50V
	C27	Vi846000	C.EL	22uF 63V

* New Parts

Schm Ref.	PART NO.	Description		
C28	VH620800	C.EL	47uF	25V
C29	VF467300	C.CE.TUBLR	0.01uF	16V
C30	Vi845900	C.EL	10uF	63V
C31	VG276600	C.CE.TUBLR	22pF	50V
C32	VG276600	C.CE.TUBLR	22pF	50V
C33	Vi845200	C.EL	4.7uF	50V
C34	VG278400	C.CE.TUBLR	220pF	50V
C35	VG278100	C.CE.TUBLR	120pF	50V
C36	Vi845600	C.EL	47uF	50V
C37	VG279000	C.CE.TUBLR	820pF	50V
C38	Vi845900	C.EL	10uF	63V
C39	VG277000	C.CE.TUBLR	33pF	50V
C40	VF466900	C.CE.TUBLR	470pF	50V
C41	Vi845200	C.EL	4.7uF	50V
C42	VJ599100	C.CE.TUBLR	0.1uF	50V
C43	Vi841900	C.EL	220uF	10V
C81	VF466800	C.CE.TUBLR	100pF	50V
C82	VF466800	C.CE.TUBLR	100pF	50V
C83	VF466800	C.CE.TUBLR	100pF	50V
C84	Vi841400	C.EL	1000uF	6.3V
C85	Vi841400	C.EL	1000uF	6.3V
C86	Vi841400	C.EL	1000uF	6.3V
C87	Vi845900	C.EL	10uF	63V
C88	Vi845600	C.EL	47uF	50V
C89	Vi845900	C.EL	10uF	63V
C90	Vi845600	C.EL	47uF	50V
C101	UT452470	C.PP	470pF	100V
C102	UT452470	C.PP	470pF	100V
C103	UT452470	C.PP	470pF	100V
C104	UT452470	C.PP	470pF	100V
C105	UT452470	C.PP	470pF	100V
C106	UT452470	C.PP	470pF	100V
C107	UT452470	C.PP	470pF	100V
C108	UT452470	C.PP	470pF	100V
C109	UT452470	C.PP	470pF	100V
C110	UT452470	C.PP	470pF	100V
C111	UT452470	C.PP	470pF	100V
C112	UT452470	C.PP	470pF	100V
C113	Vi845600	C.EL	47uF	50V
C114	Vi845600	C.EL	47uF	50V
C115	Vi845600	C.EL	47uF	50V
C116	UA654330	C.MYLAR	0.033uF	50V
C117	UA654100	C.MYLAR	0.01uF	50V
C118	UA653270	C.MYLAR	2700pF	50V
C119	UA652820	C.MYLAR	820pF	50V
C120	UT452180	C.PP	180pF	100V
C121	FU451330	C.MICA	33pF	500V
C122	Vi844900	C.EL	1uF	50V
C123	Vi844700	C.EL	0.33uF	50V
C124	Vi844500	C.EL	0.1uF	50V
C125	UA654330	C.MYLAR	0.033uF	50V
C126	UA654100	C.MYLAR	0.01uF	50V
C127	Vi845600	C.EL	47uF	50V

* New Parts

FUNCTION P. C. B.

Schm Ref.	PART NO.	Description		
C128	Vi845200	C.EL	4.7uF	50V
C129	Vi844700	C.EL	0.33uF	50V
C130	Vi845900	C.EL	10uF	63V
C131	Vi845200	C.EL	4.7uF	50V
C132	Vi845900	C.EL	10uF	63V
C133	Vi845900	C.EL	10uF	63V
C134	Vi845900	C.EL	10uF	63V
C135	Vi845900	C.EL	10uF	63V
C136	Vi844500	C.EL	0.1uF	50V
C137	Vi844500	C.EL	0.1uF	50V
C138	Vi845600	C.EL	47uF	50V
C139	Vi844900	C.EL	1uF	50V
C140	FU451330	C.MICA	33pF	500V
C141	FU451330	C.MICA	33pF	500V
C142	Vi845900	C.EL	10uF	63V
C143	Vi844500	C.EL	0.1uF	50V
C144	Vi844500	C.EL	0.1uF	50V
C145	Vi845600	C.EL	47uF	50V
C146	Vi845600	C.EL	47uF	50V
C147	Vi845600	C.EL	47uF	50V
C148	Vi845600	C.EL	47uF	50V
C149	Vi845600	C.EL	47uF	50V
C150	VF466800	C.CE.TUBLR	100pF	50V
C151	VF466800	C.CE.TUBLR	100pF	50V
C152	Vi845600	C.EL	47uF	50V
C153	Vi844900	C.EL	1uF	50V
C154	Vi845900	C.EL	10uF	63V
C155	Vi844500	C.EL	0.1uF	50V
C156	Vi844500	C.EL	0.1uF	50V
C157	Vi845600	C.EL	47uF	50V
C158	VF466700	C.CE.TUBLR	47pF	50V
C159	VF466700	C.CE.TUBLR	47pF	50V
C160	VG278400	C.CE.TUBLR	220pF	50V
C161	VG278400	C.CE.TUBLR	220pF	50V
C162	Vi844900	C.EL	1uF	50V
C163	Vi845900	C.EL	10uF	63V
C164	Vi845900	C.EL	10uF	63V
C165	Vi845900	C.EL	10uF	63V
C166	Vi844500	C.EL	0.1uF	50V
C167	Vi844500	C.EL	0.1uF	50V
C168	Vi845600	C.EL	47uF	50V
C169	VK180400	C.EL	1000uF	16V
C170	VK180400	C.EL	1000uF	16V
C171	Vi845900	C.EL	10uF	63V
C172	Vi845900	C.EL	10uF	63V
C173	Vi845900	C.EL	10uF	63V
C174	Vi845900	C.EL	10uF	63V
C175	Vi845900	C.EL	10uF	63V
C176	Vi845900	C.EL	10uF	63V
C177	Vi845900	C.EL	10uF	63V
C178	Vi845900	C.EL	10uF	63V
C179	Vi844500	C.EL	0.1uF	50V
C180	Vi844500	C.EL	0.1uF	50V

* New Parts

	Schm Ref.	PART NO.	Description		
	C181	Vi845600	C.EL	47uF	50V
	C201	UG444100	C.CE	0.01uF	50V
	C202	UG444100	C.CE	0.01uF	50V
⚠	C203	Fi414100	C.CE.SAFTY	0.01uF	VA-1
	C204	VK206300	C.EL	820uF	25V
	C205	Vi846200	C.EL	47uF	63V(R)
	C206	FG213100	C.CE	1000pF	50V(R)
	C207	Fi383470	C.CE.SAFTY	4700pF	400V(G)
	C208	Fi383470	C.CE.SAFTY	4700pF	400V(G)
	C209	Fi383470	C.CE.SAFTY	4700pF	400V(G)
	C210	Fi383470	C.CE.SAFTY	4700pF	400V(G)
	C221	Vi845600	C.EL	47uF	50V
	C222	Vi845600	C.EL	47uF	50V
	C223	Vi842900	C.EL	470uF	16V
	C224	Vi842900	C.EL	470uF	16V
	C225	Vi842900	C.EL	470uF	16V
	C226	Vi842900	C.EL	470uF	16V
	C227	Vi845900	C.EL	10uF	63V
	C228	Vi845900	C.EL	10uF	63V
	C229	Vi845900	C.EL	10uF	63V
	C230	Vi845900	C.EL	10uF	63V
	D1	iF004600	DIODE	1SS133	
	D2	iF004600	DIODE	1SS133	
	D3	iF004600	DIODE	1SS133	
	D4	VG435100	DIODE.ZENR	MTZJ2B	2.0V
	D5	iF004600	DIODE	1SS133	
	D6	iF004600	DIODE	1SS133	
	D7	iF004600	DIODE	1SS133	
	D8	iF004600	DIODE	1SS133	
	D9	iF004600	DIODE	1SS133	
	D101	VG438400	DIODE.ZENR	MTZJ6.8C	6.8V
	D102	VG438400	DIODE.ZENR	MTZJ6.8C	6.8V
	D103	VG437400	DIODE.ZENR	MTZJ5.1B	5.1V
	D104	iF004600	DIODE	1SS133	
	D105	VH770800	DIODE	1SR139-100	
	D106	VH770800	DIODE	1SR139-100	
	D107	iF004600	DIODE	1SS133	
	D108	iF004600	DIODE	1SS133	
⚠	D201	VH770800	DIODE	1SR139-100	
	D202	iF004600	DIODE	1SS133	
	D203	VG440400	DIODE.ZENR	MTZJ13A	13V(R)
	D221	VH770800	DIODE	1SR139-100	
⚠	F201	KB000760	FUSE	T3.15A	250V(ABG)
⚠	F201	KB001300	FUSE	T7.0A	250V(R)
⚠	F201	Vi721000	FUSE	8A	250V(UC)
⚠	F202	KB000760	FUSE	T3.15A	250V(R)
⚠	F202	KB002980	FUSE	T2.5A	250V(G)
	IC1	Xi109C00	IC	MC14576BP	
	IC2	Xi109C00	IC	MC14576BP	
	IC3	iG001770	IC	TC4051BP	
	IC4	XL493A00	IC	TC74HC4051AP	
	IC5	iG001770	IC	TC4051BP	
	IC6	iG001770	IC	TC4051BP	

* New Parts

FUNCTION & MAIN P. C. B.

	Schm Ref.	PART NO.	Description		
	IC7	iG055100	IC	TC4053BP	
	IC8	iR405300	IC	TC74HC4053AP	
	IC9	XL314A00	IC	M35010-062SP	
	IC10	iG142200	IC	TC74HCU04AP	
	IC11	iG001720	IC	TC4069UBP	
	IC81	Xi109C00	IC	MC14576BP	
	IC82	iG001770	IC	TC4051BP	
	IC83	XL493A00	IC	TC74HC4051AP	
	IC84	iR405300	IC	TC74HC4053AP	
	IC101	XG732A00	IC	LC7821N	
	IC102	XG732A00	IC	LC7821N	
	IC103	XG758A00	IC	LC7823N	
	IC104	XB247301	IC	uPC4570HA	
	IC105	XB247301	IC	uPC4570HA	
	IC106	XB247301	IC	uPC4570HA	
	IC107	Xi113A00	IC	LC7522	
	IC108	XE536001	IC	LC7535	
	IC109	XF971A00	IC	uPC4574C	
	IC110	iG055100	IC	TC4053BP	
	IC111	XB247301	IC	uPC4570HA	
	IC112	XE536001	IC	LC7535	
	IC113	XF971A00	IC	uPC4574C	
	IC114	iG077400	IC	NJM4556S	
	IC115	XE536001	IC	LC7535	
	IC116	XB247301	IC	uPC4570HA	
⚠	IC221	XJ603A00	IC	NJM78M15FA	
⚠	IC222	XG505A00	IC	NJM79M15FA	
⚠	IC223	XJ604A00	IC	NJM78M05FA	
⚠	IC224	XE436A00	IC	NJM79M05FA	
	JK1	VP113600	CN.DIN	2P	YKF51-5510
	JK2	VP113600	CN.DIN	2P	YKF51-5510
	JK3	VN938200	JACK.DIN	3P,S	
	L1	VM703900	COIL	15uH	
	L201	VB100200	COIL	10uH	
	L202	VB100200	COIL	10uH	
	PJ81	VJ695900	JACK.PIN	3P	
	PJ82	VM750500	JACK.PIN	4P	
	PJ101	VJ696300	JACK.PIN	4P	
	PJ102	VJ696300	JACK.PIN	4P	
	PJ103	VJ696300	JACK.PIN	4P	
	Q1	iC287820	TR	2SC2878 A,B	
	Q2	VH964100	TR.DGT	DTA143ES	
	Q3	iC260320	TR	2SC2603 E,F	
	Q4	iC260320	TR	2SC2603 E,F	
	Q5	iC260320	TR	2SC2603 E,F	
	Q6	VD678700	TR.DGT	DTC114ES	
	Q7	iC260320	TR	2SC2603 E,F	
	Q8	iC260320	TR	2SC2603 E,F	
	Q9	iC260320	TR	2SC2603 E,F	
	Q10	iC260320	TR	2SC2603 E,F	
	Q11	iA101521	TR	2SA1015 Y	
	Q12	iC224030	TR	2SC2240 GR,BL	
	Q13	iC053540	TR	2SC535 A,B,C	

⋆ New Parts

	Schm Ref.	PART NO.	Description		
	Q14	iC224030	TR	2SC2240 GR,BL	
	Q81	iC260320	TR	2SC2603 E,F	
	Q101	iC287820	TR	2SC2878 A,B	
	Q102	iC287820	TR	2SC2878 A,B	
	Q103	iC260320	TR	2SC2603 E,F	
	Q104	VH964100	TR.DGT	DTA143ES	
	Q105	iC287820	TR	2SC2878 A,B	
	Q106	iC287820	TR	2SC2878 A,B	
	Q107	VH964100	TR.DGT	DTA143ES	
	Q201	VD488500	TR.DGT	DTC143XS	
⚠	Q202	VC938500	TR	2SC3852(R)	
	R22	HV455180	R.CAR.FP	180Ω	1/4W
	R23	HV455180	R.CAR.FP	180Ω	1/4W
	R31	HV455150	R.CAR.FP	150Ω	1/4W
	R33	HV455150	R.CAR.FP	150Ω	1/4W
	R35	HV455150	R.CAR.FP	150Ω	1/4W
	R37	HV455150	R.CAR.FP	150Ω	1/4W
	R90	HV455150	R.CAR.FP	150Ω	1/4W
	R91	HV455150	R.CAR.FP	150Ω	1/4W
	R191	HV453220	R.CAR.FP	2.2Ω	1/4W
	R192	HV453220	R.CAR.FP	2.2Ω	1/4W
	R195	HV455220	R.CAR.FP	220Ω	1/4W
	R196	HV455220	R.CAR.FP	220Ω	1/4W
	R201	HV456560	R.CAR.FP	5.6KΩ	1/4W(R)
	R202	HV456560	R.CAR.FP	5.6KΩ	1/4W(R)
	R221	HV453100	R.CAR.FP	1Ω	1/4W
	R222	HV453100	R.CAR.FP	1Ω	1/4W
	R223	HL325120	R.MTL.OXD	120Ω	2W
	R224	HL325120	R.MTL.OXD	120Ω	2W
	R225	HL325120	R.MTL.OXD	120Ω	2W(UC)
	R225	HL325150	R.MTL.OXD	150Ω	2W(RABG)
⚠	RY201	VE568900	RELAY	DH12D1-OM(ABG)	
⚠	RY201	VK539200	RELAY	DH12D1-OM(UCR)	
	SW101	VM619700	SW.SLIDE	SSSS92(R)	
⚠⋆	T201	Xi481A00	TRANS.PWR	(UC)	
⚠⋆	T201	Xi482A00	TRANS.PWR	(AB)	
⚠⋆	T201	Xi483A00	TRANS.PWR	(G)	
⚠⋆	T201	Xi790A00	TRANS.PWR	(R)	
⚠⋆	TE201	VP924000	OUTLET.AC	3P(UCR)	
	XL1	VD980900	RSNR.CRYS	14.3181MHz(UCR)	
	XL1	VF066800	RSNR.CRYS	17.7344MHz(ABG)	
		BB069510	GND.MTL	No.6951	
⋆		VQ142600	P.C.B.	MAIN(UCR)	
⋆		VQ142700	P.C.B.	MAIN(AB)	
⋆		VQ142800	P.C.B.	MAIN(G)	
	CB301	LB201880	HOLDER.FUS	PC-FH1	
	CB302	LB201880	HOLDER.FUS	PC-FH1	

⋆ New Parts

MAIN P. C. B.

	Schm Ref.	PART NO.	Description	
	CB303	LB201880	HOLDER.FUS	PC-FH1
	CB304	LB201880	HOLDER.FUS	PC-FH1
	CB305	LA002320	TERM.WRAP	3P i-TYPE P=7.5
	CB306	VD004900	CN.BS.PIN	PH i-TYPE 6P TE
	CB307	VB858900	CN.BS.PIN	PH L-TYPE 10P SE
	CB308	VB858600	CN.BS.PIN	PH L-TYPE 7P SE
	CB309	LB919040	CN.BS.PIN	XH L-TYPE 4P SE
	CB310	LB919030	CN.BS.PIN	XH L-TYPE 3P SE
	CB311	LA002320	TERM.WRAP	3P i-TYPE P=7.5
	CB312	LA002320	TERM.WRAP	3P i-TYPE P=7.5
	C301	Vi862200	C.POLY	0.1uF 100V
	C302	VK180800	C.EL	6800uF 16V
	C303	Vi862200	C.POLY	0.1uF 100V
	C304	Vi862200	C.POLY	0.1uF 100V
	C305	VK180700	C.EL	4700uF 16V
	C306	Vi862200	C.POLY	0.1uF 100V
	C307	Vi862200	C.POLY	0.1uF 100V
	C308	Vi862200	C.POLY	0.1uF 100V
	C309	Vi862200	C.POLY	0.1uF 100V
	C310	Vi862200	C.POLY	0.1uF 100V
	C311	Vi862200	C.POLY	0.1uF 100V
*	C312	VQ119900	C.EL	10000uF 35V
*	C313	VQ119900	C.EL	10000uF 35V
*	C314	VQ120000	C.EL	10000uF 56V
*	C315	VQ120000	C.EL	10000uF 56V
	C316	VK179200	C.EL	2200uF 6.3V
	C317	Vi845900	C.EL	10uF 63V
	C318	Vi845900	C.EL	10uF 63V
	C319	Vi845900	C.EL	10uF 63V
	C320	Vi845900	C.EL	10uF 63V
	C321	Vi845900	C.EL	10uF 63V
	C322	Vi845900	C.EL	10uF 63V
	C323	Vi844900	C.EL	1uF 50V
	C324	UT452470	C.PP	470pF 100V
	C326	UT452470	C.PP	470pF 100V
	C327	UT452470	C.PP	470pF 100V
	C328	UT452470	C.PP	470pF 100V
	C329	UT452470	C.PP	470pF 100V
	C330	VH622100	C.EL	10uF 50V
	C331	VH622100	C.EL	10uF 50V
	C332	UT452100	C.PP	100pF 100V(UCRAB)
	C332	UT653180	C.PP	1800pF 100V(G)
	C333	VH574800	C.EL	47uF 100V
	C334	UT453150	C.PP	1500pF 100V
	C335	VH622100	C.EL	10uF 50V
	C336	VH622100	C.EL	10uF 50V
	C337	UT452100	C.PP	100pF 100V(UCRAB)
	C337	UT653180	C.PP	1800pF 100V(G)
	C338	VH574800	C.EL	47uF 100V
	C339	UT453150	C.PP	1500pF 100V
	C340	VH622100	C.EL	10uF 50V
	C341	VH622100	C.EL	10uF 50V
	C343	UT452100	C.PP	100pF 100V(UCRAB)

* New Parts

Schm Ref.	PART NO.	Description		
C343	UT653180	C.PP	1800pF	100V(G)
C344	VH574800	C.EL	47uF	100V
C345	UT453150	C.PP	1500pF	100V
C346	FU351220	C.MICA	22pF	500V
C347	UT451470	C.PP	47pF	250V
C348	Vi841800	C.EL	100uF	10V
C349	VH622200	C.EL	22uF	50V
C350	FU351220	C.MICA	22pF	500V
C351	UT451470	C.PP	47pF	250V
C352	Vi841800	C.EL	100uF	10V
C353	VH622200	C.EL	22uF	50V
C354	FU351220	C.MICA	22pF	500V
C355	UT451470	C.PP	47pF	250V
C356	Vi841800	C.EL	100uF	10V
C357	VH622200	C.EL	22uF	50V
C358	FU452100	C.MICA	100pF	500V
C359	FU452100	C.MICA	100pF	500V
C360	FU452100	C.MICA	100pF	500V
C361	FU452100	C.MICA	100pF	500V
C362	FU452100	C.MICA	100pF	500V
C363	FU452100	C.MICA	100pF	500V
C364	Vi844900	C.EL	1uF	50V
C365	UT454100	C.PP	0.01uF	100V
C366	Vi846900	C.EL	10uF	100V
C367	UT454470	C.PP	0.047uF	100V
C368	Vi846900	C.EL	10uF	100V
C369	UT454100	C.PP	0.01uF	100V
C370	UT454100	C.PP	0.01uF	100V
C371	Vi846900	C.EL	10uF	100V
C372	UT454470	C.PP	0.047uF	100V
C373	Vi846900	C.EL	10uF	100V
C374	UT454100	C.PP	0.01uF	100V
C375	UT454470	C.PP	0.047uF	100V
C376	UA654470	C.MYLAR	0.047uF	50V
C377	UA654470	C.MYLAR	0.047uF	50V
C378	UA654470	C.MYLAR	0.047uF	50V
C379	UA654470	C.MYLAR	0.047uF	50V
C380	Vi845600	C.EL	47uF	50V
C381	VH622100	C.EL	10uF	50V
C382	VH622100	C.EL	10uF	50V
C383	VH622100	C.EL	10uF	50V
C384	VH622100	C.EL	10uF	50V
C385	Vi845600	C.EL	47uF	50V
C386	Vi845600	C.EL	47uF	50V
C387	Vi845600	C.EL	47uF	50V
C388	FU452100	C.MICA	100pF	500V
C389	UA654100	C.MYLAR	0.01uF	50V
C390	UT452470	C.PP	470pF	100V
C391	FG211330	C.CE	33pF	50V
C392	Vi845600	C.EL	47uF	50V
C393	Vi845900	C.EL	10uF	63V
C394	Vi845900	C.EL	10uF	63V
C395	Vi845600	C.EL	47uF	50V

* New Parts

MAIN P. C. B.

	Schm Ref.	PART NO.	Description		
	C396	FG211330	C.CE	33pF	50V
	C397	UT452470	C.PP	470pF	100V
	C398	UA654100	C.MYLAR	0.01uF	50V
	C399	FU452100	C.MICA	100pF	500V
	C400	FU452100	C.MICA	100pF	500V
	C401	UA654100	C.MYLAR	0.01uF	50V
	C402	UT452470	C.PP	470pF	100V
	C403	FG211330	C.CE	33pF	50V
	C404	Vi845600	C.EL	47uF	50V
	C405	Vi845900	C.EL	10uF	63V
	C406	Vi845900	C.EL	10uF	63V
	C407	Vi845600	C.EL	47uF	50V
	C408	FG211330	C.CE	33pF	50V
	C409	UT452470	C.PP	470pF	100V
	C410	UA654100	C.MYLAR	0.01uF	50V
	C411	FU452100	C.MICA	100pF	500V
	C412	Vi845900	C.EL	10uF	63V
	C413	Vi845900	C.EL	10uF	63V
	C414	Vi845900	C.EL	10uF	63V
	C415	Vi845900	C.EL	10uF	63V
	C416	UT454100	C.PP	0.01uF	100V(G)
	C417	UT454100	C.PP	0.01uF	100V(G)
	C418	UG444220	C.CE	0.022uF	50V(G)
	C419	UG444220	C.CE	0.022uF	50V(G)
	C420	UT454100	C.PP	0.01uF	100V(G)
	C421	UG444220	C.CE	0.022uF	50V(G)
	C422	UT454100	C.PP	0.01uF	100V(G)
	C423	UT454100	C.PP	0.01uF	100V(G)
	C424	UT454100	C.PP	0.01uF	100V(G)
	C425	UT454100	C.PP	0.01uF	100V(G)
	C426	Vi845900	C.EL	10uF	63V
	C427	Vi845900	C.EL	10uF	63V
	C429	Vi862100	C.POL.MTL	0.047uF	100V
	C430	UG444220	C.CE	0.022uF	50V(G)
	C431	UG444220	C.CE	0.022uF	50V(G)
	C432	UG444220	C.CE	0.022uF	50V(G)
	C433	UG444220	C.CE	0.022uF	50V(G)
	C434	UA653330	C.MYLAR	3300pF	50V(G)
	C435	UT452220	C.PP	220pF	100V
	C436	UA653330	C.MYLAR	3300pF	50V(G)
	C437	UA653330	C.MYLAR	3300pF	50V(G)
	C438	UA653330	C.MYLAR	3300pF	50V(G)
	C439	UA653330	C.MYLAR	3300pF	50V(G)
	C440	UT452220	C.PP	220pF	100V
	C441	UT452220	C.PP	220pF	100V
	C442	VK179200	C.EL	2200uF	6.3V
⚠	D301	VH770800	DIODE	1SR139-100	
⚠	D302	VH770800	DIODE	1SR139-100	
⚠	D303	VH770800	DIODE	1SR139-100	
⚠	D304	VH770800	DIODE	1SR139-100	
⚠	D305	Vi711600	DIODE.BRG	RBV-602 LF-A	
⚠	D306	iH001130	DIODE.BRG	D5FB20	
	D307	VH770800	DIODE	1SR139-100	

* New Parts

	Schm Ref.	PART NO.	Description		
	D308	iF004600	DIODE	1SS133	
	D309	iF004600	DIODE	1SS133	
	D310	iF004600	DIODE	1SS133	
	D311	iF004600	DIODE	1SS133	
	D312	iF004600	DIODE	1SS133	
	D313	iF004600	DIODE	1SS133	
	D314	iF004600	DIODE	1SS133	
	D315	iF004600	DIODE	1SS133	
	D316	iF004600	DIODE	1SS133	
	D317	iF004600	DIODE	1SS133	
	D318	iF004600	DIODE	1SS133	
	D319	iF004600	DIODE	1SS133	
	D320	VG442500	DIODE.ZENR	MTZJ24B	24V
	D321	VG442500	DIODE.ZENR	MTZJ24B	24V
	D322	iF004600	DIODE	1SS133	
	D323	iF004600	DIODE	1SS133	
	D324	iF004600	DIODE	1SS133	
	D325	iF004600	DIODE	1SS133	
*	D326	VP779200	DIODE	S2L20U	
*	D327	VP779200	DIODE	S2L20U	
*	D328	VP779200	DIODE	S2L20U	
*	D329	VP779200	DIODE	S2L20U	
⚠	F301	KB001520	FUSE	7.0A	125V(UCR)
⚠	F301	KB001760	FUSE	6.3A	250V(ABG)
⚠	F302	KB001520	FUSE	7.0A	125V(UCR)
⚠	F302	KB001760	FUSE	6.3A	250V(ABG)
	IC301	iG092000	IC	M5220L	
	IC302	iG092000	IC	M5220L	
	L301	VC664100	COIL	0.95uH	
	L302	VC664100	COIL	0.95uH	
	L303	VC664100	COIL	0.95uH	
	L304	VK175800	COIL	1.5uH	
	L305	VK175800	COIL	1.5uH	
	L306	VK175800	COIL	1.5uH	
	L307	VK175800	COIL	1.5uH	
	PJ301	VL552600	JACK.PIN	1P	
	PJ302	VJ133600	JACK.PIN	2P	
	PJ303	VJ133600	JACK.PIN	2P	
	Q301	iC174020	TR	2SC1740S R,S	
	Q302	VH964100	TR.DGT	DTA143ES	
	Q303	iC174020	TR	2SC1740S R,S	
	Q304	VD488500	TR.DGT	DTC143XS	
	Q305	VK432900	TR	2SD1915F S,T	
	Q306	VK432900	TR	2SD1915F S,T	
	Q307	VK432900	TR	2SD1915F S,T	
	Q308	VK432900	TR	2SD1915F S,T	
	Q309	VK432900	TR	2SD1915F S,T	
	Q310	VK432900	TR	2SD1915F S,T	
	Q311	VK432900	TR	2SD1915F S,T	
	Q312	VK432900	TR	2SD1915F S,T	
	Q313	iA097000	TR	2SA970 GR,BL	
	Q314	iA097000	TR	2SA970 GR,BL	
	Q315	iC1815C0	TR	2SC1815 Y	

* New Parts

MAIN P. C. B.

	Schm Ref.	PART NO.	Description	
	Q316	iC1815C0	TR	2SC1815 Y
	Q317	iC1815C0	TR	2SC1815 Y
	Q318	iA097000	TR	2SA970 GR,BL
	Q319	iA097000	TR	2SA970 GR,BL
	Q320	iC1815C0	TR	2SC1815 Y
	Q321	iC1815C0	TR	2SC1815 Y
	Q322	iC1815C0	TR	2SC1815 Y
	Q323	iA097000	TR	2SA970 GR,BL
	Q324	iA097000	TR	2SA970 GR,BL
	Q325	iC1815C0	TR	2SC1815 Y
	Q326	iC1815C0	TR	2SC1815 Y
	Q327	iC1815C0	TR	2SC1815 Y
	Q328	VE198800	TR	2SC2705 O,Y
	Q329	VE198700	TR	2SA1145 O,Y
	Q330	iC224000	TR	2SC2240 GR,BL
	Q331	VE198800	TR	2SC2705 O,Y
	Q332	VE198700	TR	2SA1145 O,Y
	Q333	VE198800	TR	2SC2705 O,Y
	Q334	VE198700	TR	2SA1145 O,Y
	Q335	iC224000	TR	2SC2240 GR,BL
	Q336	VE198800	TR	2SC2705 O,Y
	Q337	VE198700	TR	2SA1145 O,Y
	Q338	VE198800	TR	2SC2705 O,Y
	Q339	VE198700	TR	2SA1145 O,Y
	Q340	iC224000	TR	2SC2240 GR,BL
	Q341	VE198800	TR	2SC2705 O,Y
	Q342	VE198700	TR	2SA1145 O,Y
⚠	Q343A	iX603580	TR	2SA1358
⚠	Q343C	iX603590	TR	2SC3421
⚠#	Q344A	iX632650	TR	2SA1633 D,E,F
⚠#	Q344C	iX632660	TR	2SC4278 D,E,F
*	Q345	VQ282200	TR	2SC2459 GR,BL
⚠	Q348	iX603580	TR	2SA1358
⚠	Q348	iX603590	TR	2SC3421
⚠#	Q349A	iX632650	TR	2SA1633 D,E,F
⚠#	Q349C	iX632660	TR	2SC4278 D,E,F
*	Q350	VQ282200	TR	2SC2459 GR,BL
⚠	Q353	iX603580	TR	2SA1358
⚠	Q353	iX603590	TR	2SC3421
⚠#	Q354A	iX632650	TR	2SA1633 D,E,F
⚠#	Q354C	iX632660	TR	2SC4278 D,E,F
*	Q355	VQ282200	TR	2SC2459 GR,BL
	Q358	iA097000	TR	2SA970 GR,BL
⚠	Q359	iC1815C0	TR	2SC1815 Y
⚠	Q360	iA101521	TR	2SA1015 Y
*	Q361	VQ282200	TR	2SC2459 GR,BL
*	Q362	VQ282200	TR	2SC2459 GR,BL
*	Q363	VQ282200	TR	2SC2459 GR,BL
*	Q364	VQ282200	TR	2SC2459 GR,BL
⚠	Q365A	iX619590	TR	2SA1726 O,P,Y
⚠	Q365C	iX619600	TR	2SC4512 O,P,Y
⚠	Q366	iD043820	TR	2SD438 E,F
⚠	Q368	iB056020	TR	2SB560 E,F

* New Parts

	Schm Ref.	PART NO.	Description	
⚠	Q369	iB056020	TR	2SB560 E,F
⚠	Q370A	iX619590	TR	2SA1726 O,P,Y
⚠	Q370C	iX619600	TR	2SC4512 O,P,Y
⚠	Q371	iD043820	TR	2SD438 E,F
⚠	Q373A	iX619590	TR	2SA1726 O,P,Y
⚠	Q373C	iX619600	TR	2SC4512 O,P,Y
⚠	Q374	iD043820	TR	2SD438 E,F
⚠	Q376	iB056020	TR	2SB560 E,F
⚠	Q377	iB056020	TR	2SB560 E,F
⚠	Q378A	iX619590	TR	2SA1726 O,P,Y
⚠	Q378C	iX619600	TR	2SC4512 O,P,Y
⚠	Q379	iD043820	TR	2SD438 E,F
*	Q381	VQ282200	TR	2SC2459 GR,BL
*	Q382	VQ282200	TR	2SC2459 GR,BL
*	Q383	VQ282200	TR	2SC2459 GR,BL
*	Q384	VQ282200	TR	2SC2459 GR,BL
⚠	R307	HL315120	R.MTL.OXD	120Ω 1W
⚠	R356	HV455220	R.CAR.FP	220Ω 1/4W
⚠	R357	HV455220	R.CAR.FP	220Ω 1/4W
⚠	R364	HV455220	R.CAR.FP	220Ω 1/4W
⚠	R365	HV455220	R.CAR.FP	220Ω 1/4W
⚠	R372	HV455220	R.CAR.FP	220Ω 1/4W
⚠	R373	HV455220	R.CAR.FP	220Ω 1/4W
⚠	R374	VK188000	R.FUS	150Ω 1/4W
	R375	HV457150	R.CAR.FP	15KΩ 1/4W
⚠	R376	VK189500	R.FUS	3.3KΩ 1/4W
	R377	HV457150	R.CAR.FP	15KΩ 1/4W
⚠	R378	VK189100	R.FUS	1.2KΩ 1/4W
	R379	HV457150	R.CAR.FP	15KΩ 1/4W
⚠	R380	VK188700	R.FUS	560Ω 1/4W
⚠	R381	HV455100	R.CAR.FP	100Ω 1/4W
⚠	R382	HV455680	R.CAR.FP	680Ω 1/4W
⚠	R383	HV454470	R.CAR.FP	47Ω 1/4W
⚠	R384	VK188000	R.FUS	150Ω 1/4W
	R385	HV457150	R.CAR.FP	15KΩ 1/4W
⚠	R386	VK189500	R.FUS	3.3KΩ 1/4W
	R387	HV457150	R.CAR.FP	15KΩ 1/4W
⚠	R388	VK189100	R.FUS	1.2KΩ 1/4W
	R389	HV457150	R.CAR.FP	15KΩ 1/4W
⚠	R390	VK188700	R.FUS	560Ω 1/4W
⚠	R391	HV455100	R.CAR.FP	100Ω 1/4W
⚠	R392	HV455680	R.CAR.FP	680Ω 1/4W
⚠	R393	HV454470	R.CAR.FP	47Ω 1/4W
⚠	R394	VK188000	R.FUS	150Ω 1/4W
	R395	HV457150	R.CAR.FP	15KΩ 1/4W
⚠	R396	VK189500	R.FUS	3.3KΩ 1/4W
	R397	HV457150	R.CAR.FP	15KΩ 1/4W
⚠	R398	VK189100	R.FUS	1.2KΩ 1/4W
	R399	HV457150	R.CAR.FP	15KΩ 1/4W
⚠	R400	VK188700	R.FUS	560Ω 1/4W
⚠	R401	HV455100	R.CAR.FP	100Ω 1/4W
⚠	R402	HV455680	R.CAR.FP	680Ω 1/4W
⚠	R403	HV454470	R.CAR.FP	47Ω 1/4W

* New Parts

MAIN & DSP P. C. B.

	Schm Ref.	PART NO.	Description		
⚠	R404	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R405	HV456470	R.CAR.FP	4.7KΩ	1/4W
⚠	R406	HV456100	R.CAR.FP	1KΩ	1/4W
⚠	R407	VJ787600	R.MTL.PLAT	0.22Ω+0.22	5W
⚠	R408	VK188400	R.FUS	330Ω	1/4W
⚠	R409	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R410	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R411	HV456470	R.CAR.FP	4.7KΩ	1/4W
⚠	R412	HV456100	R.CAR.FP	1KΩ	1/4W
⚠	R413	VJ787600	R.MTL.PLAT	0.22Ω+0.22	5W
⚠	R414	VK188400	R.FUS	330Ω	1/4W
⚠	R415	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R416	HV453470	R.CAR.FP	4.7Ω	1/4W
⚠	R417	HV456470	R.CAR.FP	4.7KΩ	1/4W
⚠	R418	HV456100	R.CAR.FP	1KΩ	1/4W
⚠	R419	VJ787600	R.MTL.PLAT	0.22Ω+0.22	5W
⚠	R420	VK188400	R.FUS	330Ω	1/4W
⚠	R421	HV453470	R.CAR.FP	4.7Ω	1/4W
	R436	VE009700	R.FUS	4.7Ω	1/4W
	R437	HL314100	R.MTL.OXD	10Ω	1W
	R438	HV453470	R.CAR.FP	4.7Ω	1/4W
	R439	VE009700	R.FUS	4.7Ω	1/4W
	R441	VE009700	R.FUS	4.7Ω	1/4W
	R442	HL314100	R.MTL.OXD	10Ω	1W
	R443	HV453470	R.CAR.FP	4.7Ω	1/4W
	R444	VE009700	R.FUS	4.7Ω	1/4W
	R446	HL314100	R.MTL.OXD	10Ω	1W
	R447	HV453470	R.CAR.FP	4.7Ω	1/4W
	R448	HV453470	R.CAR.FP	4.7Ω	1/4W
	R449	HV453470	R.CAR.FP	4.7Ω	1/4W
	R450	HV453470	R.CAR.FP	4.7Ω	1/4W
	R451	HV453470	R.CAR.FP	4.7Ω	1/4W
	R490	HV454100	R.CAR.FP	10Ω	1/4W
	R491	HV454100	R.CAR.FP	10Ω	1/4W
	R492	HV454100	R.CAR.FP	10Ω	1/4W
	R493	HV454100	R.CAR.FP	10Ω	1/4W
⚠	R494	HV455150	R.CAR.FP	150Ω	1/4W
⚠	R495	HV456150	R.CAR.FP	1.5KΩ	1/4W
⚠	R496	VE869300	R.MTL.OXD	0.1Ω	2W
⚠	R497	HV456220	R.CAR.FP	2.2KΩ	1/4W
⚠	R498	HV455150	R.CAR.FP	150Ω	1/4W
⚠	R499	HV454100	R.CAR.FP	10Ω	1/4W
⚠	R500	HV454100	R.CAR.FP	10Ω	1/4W
⚠	R501	HV455150	R.CAR.FP	150Ω	1/4W
⚠	R502	VE869300	R.MTL.OXD	0.1Ω	2W
⚠	R503	HV456220	R.CAR.FP	2.2KΩ	1/4W
⚠	R504	HV456150	R.CAR.FP	1.5KΩ	1/4W
⚠	R505	HV455150	R.CAR.FP	150Ω	1/4W
⚠	R506	HV455150	R.CAR.FP	150Ω	1/4W
⚠	R507	HV456150	R.CAR.FP	1.5KΩ	1/4W
⚠	R508	VE869300	R.MTL.OXD	0.1Ω	2W
⚠	R509	HV456220	R.CAR.FP	2.2KΩ	1/4W
⚠	R510	HV455150	R.CAR.FP	150Ω	1/4W

* New Parts

	Schm Ref.	PART NO.	Description		
⚠	R511	HV454100	R.CAR.FP	10Ω	1/4W
⚠	R512	HV454100	R.CAR.FP	10Ω	1/4W
⚠	R513	HV455150	R.CAR.FP	150Ω	1/4W
⚠	R514	VE869300	R.MTL.OXD	0.1Ω	2W
⚠	R515	HV456220	R.CAR.FP	2.2KΩ	1/4W
⚠	R516	HV456150	R.CAR.FP	1.5KΩ	1/4W
⚠	R517	HV455150	R.CAR.FP	150Ω	1/4W
	R533	HL325470	R.MTL.OXD	470Ω	2W
	R534	HL325470	R.MTL.OXD	470Ω	2W
	R535	HL325470	R.MTL.OXD	470Ω	2W
	R536	HL325470	R.MTL.OXD	470Ω	2W
	R544	HL326150	R.MTL.OXD	1.5KΩ	2W
	RY301	KC001940	RELAY	DH24D2-OTM	
	RY302	KC001940	RELAY	DH24D2-OTM	
	SW301	VM619700	SW.SLIDE	SSSS92	
	SW302	VM619700	SW.SLIDE	SSSS92	
	SW303	VJ769200	SW.SLIDE	ESD-2764	
	TE301	VJ792600	TERM.SP	8P(UCRAB)	
	TE301	VK178900	TERM.SP	8P(G)	
	TE302	VJ792600	TERM.SP	8P(UCRAB)	
	TE302	VK178900	TERM.SP	8P(G)	
	VR301	VJ692700	VR.TRIM	B330Ω	
	VR302	VJ692700	VR.TRIM	B330Ω	
	VR303	VJ692700	VR.TRIM	B330Ω	
		BB069510	GND.MTL	No.6951	
*		VQ143000	P.C.B.	DSP (UC)	
*		VQ143100	P.C.B.	DSP (R)	
*		VQ143200	P.C.B.	DSP (AB)	
*		VQ143300	P.C.B.	DSP (G)	
*	CB603	VP362000	CN.BS.PIN	FE 28P SE	
*	CB604	VP360400	CN.BS.PIN	FE 12P SE	
*	CB605	VP360200	CN.BS.PIN	FE 10P SE	
	CB606	VB858900	CN.BS.PIN	PH L-TYPE 10P SE	
	CB607	VB858300	CN.POST	PH 4P SE	
	CB608	VB858100	CN.POST	PH 2P SE(UCRAB)	
	CB609	VB858200	CN.BS.PIN	PH L-TYPE 3P SE	
	CB610	VB858200	CN.BS.PIN	PH L-TYPE 3P SE(G)	
	C601	UT452470	C.PP	470pF	100V
	C602	VJ599100	C.CE.TUBLR	0.1uF	50V
	C603	UT452470	C.PP	470pF	100V
	C604	UT452470	C.PP	470pF	100V
	C605	UT452470	C.PP	470pF	100V
	C606	UT452470	C.PP	470pF	100V
	C607	UT452470	C.PP	470pF	100V
	C608	VJ599100	C.CE.TUBLR	0.1uF	50V
	C609	UT452470	C.PP	470pF	100V
	C610	UT452470	C.PP	470pF	100V
	C611	UT452470	C.PP	470pF	100V
	C612	UT452470	C.PP	470pF	100V
	C613	VJ599100	C.CE.TUBLR	0.1uF	50V

* New Parts

DSP P. C. B.

	Schm Ref.	PART NO.	Description		
	C618	UA653100	C.MYLAR	1000pF	50V
	C619	Vi845900	C.EL	10uF	63V
	C620	UA654110	C.MYLAR	0.011uF	50V
	C621	UA654390	C.MYLAR	0.039uF	50V
	C622	Vi841100	C.EL	220uF	6.3V
	C623	Vi841100	C.EL	220uF	6.3V
	C624	UT452100	C.PP	100pF	100V
	C625	UT452100	C.PP	100pF	100V
	C626	UT452220	C.PP	220pF	100V
	C627	UT452220	C.PP	220pF	100V
	C628	Vi844900	C.EL	1uF	50V
	C629	UA653100	C.MYLAR	1000pF	50V
	C630	Vi845900	C.EL	10uF	63V
	C631	UA654110	C.MYLAR	0.011uF	50V
	C632	UA654390	C.MYLAR	0.039uF	50V
	C633	Vi842600	C.EL	100uF	16V
	C634	Vi842600	C.EL	100uF	16V
	C635	Vi844900	C.EL	1uF	50V
	C640	FU351220	C.MICA	22pF	500V
	C641	VH622000	C.EL	4.7uF	50V
	C642	Vi845600	C.EL	47uF	50V
	C643	VH622000	C.EL	4.7uF	50V
	C644	Vi845600	C.EL	47uF	50V
	C645	FU351220	C.MICA	22pF	500V
	C647	Vi845900	C.EL	10uF	63V
	C648	Vi845900	C.EL	10uF	63V
	C649	VH622200	C.EL	22uF	50V
	C650	VH622200	C.EL	22uF	50V
	C651	VH622200	C.EL	22uF	50V
	C652	VH622200	C.EL	22uF	50V
	C653	VH622200	C.EL	22uF	50V
	C654	VH622200	C.EL	22uF	50V
	C655	VH622200	C.EL	22uF	50V
	C657	Vi846000	C.EL	22uF	63V
	C658	Vi845900	C.EL	10uF	63V
	C659	Vi845600	C.EL	47uF	50V
	C660	UB245100	C.CE.M.CHP	0.1uF	25V
	C661	UB245100	C.CE.M.CHP	0.1uF	25V
	C662	Vi845900	C.EL	10uF	63V
	C663	Vi845600	C.EL	47uF	50V
	C664	UA655150	C.MYLAR	0.15uF	50V
	C665	Vi846000	C.EL	22uF	63V
	C666	UB012270	C.CE.M.CHP	270pF	50V(G)
	C666	UB052100	C.CE.M.CHP	100pF	50V(UCRAB)
	C667	Vi842800	C.EL	330uF	16V
	C668	Vi842800	C.EL	330uF	16V
	C669	Vi230500	C.CE.M.CHP	3300pF	50V
*	C670	UB052180	C.CE.M.CHP	180pF	50V
	C671	Vi230100	C.CE.M.CHP	2200pF	50V
	C672	Vi230100	C.CE.M.CHP	2200pF	50V
	C673	Vi230500	C.CE.M.CHP	3300pF	50V
*	C674	UB052180	C.CE.M.CHP	180pF	50V
	C675	Vi230100	C.CE.M.CHP	2200pF	50V

* New Parts

	Schm Ref.	PART NO.	Description		
	C676	Vi230100	C.CE.M.CHP	2200pF	50V
	C678	UB012330	C.CE.M.CHP	330pF	50V
	C679	UB012270	C.CE.M.CHP	270pF	50V
	C680	Vi846000	C.EL	22uF	63V
	C681	UB012330	C.CE.M.CHP	330pF	50V
*	C682	UB052180	C.CE.M.CHP	180pF	50V
	C683	Vi230500	C.CE.M.CHP	3300pF	50V
	C684	UB051100	C.CE.M.CHP	10pF	50V
*	C685	UB052180	C.CE.M.CHP	180pF	50V
	C686	Vi230500	C.CE.M.CHP	3300pF	50V
	C687	UB051100	C.CE.M.CHP	10pF	50V
	C690	Vi846000	C.EL	22uF	63V
	C691	Vi846000	C.EL	22uF	63V
	C692	Vi846000	C.EL	22uF	63V
	C693	UB012270	C.CE.M.CHP	270pF	50V
	C694	Vi846000	C.EL	22uF	63V
	C695	Vi846000	C.EL	22uF	63V
	C696	Vi846000	C.EL	22uF	63V
	C697	UB012330	C.CE.M.CHP	330pF	50V
	C698	UB051330	C.CE.M.CHP	33pF	50V
	C699	UB051330	C.CE.M.CHP	33pF	50V
	C700	UB051100	C.CE.M.CHP	10pF	50V
	C701	UB051330	C.CE.M.CHP	33pF	50V
	C702	UB051330	C.CE.M.CHP	33pF	50V
	C703	UB051100	C.CE.M.CHP	10pF	50V
	C704	Vi846000	C.EL	22uF	63V
	C705	UB245100	C.CE.M.CHP	0.1uF	25V
	C706	Vi845600	C.EL	47uF	50V
	C707	Vi842800	C.EL	330uF	16V
	C708	Vi230500	C.CE.M.CHP	3300pF	50V
	C709	Vi230500	C.CE.M.CHP	3300pF	50V
	C710	UB245100	C.CE.M.CHP	0.1uF	25V
	C711	UB245100	C.CE.M.CHP	0.1uF	25V
	C712	Vi845600	C.EL	47uF	50V
	C713	Vi845600	C.EL	47uF	50V
	C714	Vi845600	C.EL	47uF	50V
	C715	Vi845600	C.EL	47uF	50V
	C716	UB245100	C.CE.M.CHP	0.1uF	25V
	C717	UB245100	C.CE.M.CHP	0.1uF	25V
	C718	UB245100	C.CE.M.CHP	0.1uF	25V
	C719	UB245100	C.CE.M.CHP	0.1uF	25V
	C720	UB245100	C.CE.M.CHP	0.1uF	25V
	C721	Vi841800	C.EL	100uF	10V
	C722	Vi841800	C.EL	100uF	10V
	C723	UA654100	C.MYLAR	0.01uF	50V
	C724	Vi845600	C.EL	47uF	50V
	C725	UA654100	C.MYLAR	0.01uF	50V
	C726	UB245100	C.CE.M.CHP	0.1uF	25V
	C727	Vi845900	C.EL	10uF	63V
	C728	Vi845600	C.EL	47uF	50V
	C729	Vi845600	C.EL	47uF	50V
	C730	UB245100	C.CE.M.CHP	0.1uF	25V
	C731	Vi845900	C.EL	10uF	63V

* New Parts

DSP P. C. B.

Schm Ref.	PART NO.	Description		
C732	Vi844800	C.EL	0.47uF	50V
C733	UB245100	C.CE.M.CHP	0.1uF	25V
C734	Vi845600	C.EL	47uF	50V
C735	Vi841900	C.EL	220uF	10V
C736	Vi841200	C.EL	330uF	6.3V
C737	Vi845600	C.EL	47uF	50V
C738	VE632800	C.EL	0.047F	5.5V
C739	Vi842800	C.EL	330uF	16V
C740	UB245100	C.CE.M.CHP	0.1uF	25V
C741	UB245100	C.CE.M.CHP	0.1uF	25V
C742	VJ599100	C.CE.TUBLR	0.1uF	50V
C743	Vi846000	C.EL	22uF	63V
C744	VJ599100	C.CE.TUBLR	0.1uF	50V
C745	UT452100	C.PP	100pF	100V(UCRAB)
C745	UT452220	C.PP	220pF	100V(G)
C746	UT452100	C.PP	100pF	100V(UCRAB)
C746	UT452220	C.PP	220pF	100V(G)
C747	Vi230500	C.CE.M.CHP	3300pF	50V
C748	Vi230500	C.CE.M.CHP	3300pF	50V
C749	Vi844900	C.EL	1uF	50V
C750	UB052120	C.CE.M.CHP	120pF	50V
C751	UB052120	C.CE.M.CHP	120pF	50V
C752	UB052120	C.CE.M.CHP	120pF	50V
C753	UB052120	C.CE.M.CHP	120pF	50V
C754	UB052120	C.CE.M.CHP	120pF	50V
C755	UB052120	C.CE.M.CHP	120pF	50V
C756	UB052120	C.CE.M.CHP	120pF	50V
C757	UB052120	C.CE.M.CHP	120pF	50V
C758	UB052120	C.CE.M.CHP	120pF	50V
C759	UB052120	C.CE.M.CHP	120pF	50V
C760	UB052120	C.CE.M.CHP	120pF	50V
C761	UB052120	C.CE.M.CHP	120pF	50V
C762	UB052120	C.CE.M.CHP	120pF	50V
C763	UB052120	C.CE.M.CHP	120pF	50V
C764	UB052120	C.CE.M.CHP	120pF	50V
C765	UB052120	C.CE.M.CHP	120pF	50V
C766	UB052120	C.CE.M.CHP	120pF	50V
C767	UB052120	C.CE.M.CHP	120pF	50V
C768	UB052120	C.CE.M.CHP	120pF	50V
C769	UB052120	C.CE.M.CHP	120pF	50V
C770	UB052120	C.CE.M.CHP	120pF	50V
C771	UB052120	C.CE.M.CHP	120pF	50V
C772	UB052120	C.CE.M.CHP	120pF	50V
C773	UB052120	C.CE.M.CHP	120pF	50V
C774	UB052120	C.CE.M.CHP	120pF	50V
C775	UB052120	C.CE.M.CHP	120pF	50V
C776	UB052120	C.CE.M.CHP	120pF	50V
C777	UB052120	C.CE.M.CHP	120pF	50V
C778	UB052120	C.CE.M.CHP	120pF	50V
C779	UB052120	C.CE.M.CHP	120pF	50V
C780	UB052120	C.CE.M.CHP	120pF	50V
C781	UB052120	C.CE.M.CHP	120pF	50V
C782	UB052120	C.CE.M.CHP	120pF	50V

* New Parts

Schm Ref.	PART NO.	Description		
C783	UB014100	C.CE.M.CHP	0.01uF	50V
C784	UB245100	C.CE.M.CHP	0.1uF	25V
C785	UB245100	C.CE.M.CHP	0.1uF	25V
C786	Vi845600	C.EL	47uF	50V
D601	iF004600	DIODE	1SS133	
D602	iF004600	DIODE	1SS133	
D603	VG437400	DIODE.ZENR	MTZJ5.1B	5.1V
D604	iF004600	DIODE	1SS133	
D605	iF004600	DIODE	1SS133	
D606	iF004600	DIODE	1SS133	
D607	iF004600	DIODE	1SS133	
D608	iF004600	DIODE	1SS133	
D609	iF004600	DIODE	1SS133	
D610	iF004600	DIODE	1SS133	
D611	iF004600	DIODE	1SS133	
D612	iF004600	DIODE	1SS133	
D613	iF004600	DIODE	1SS133	
D614	iF004600	DIODE	1SS133	
D615	VG438200	DIODE.ZENR	MTZJ6.8A	6.8V
D616	iF004600	DIODE	1SS133	
D617	VG436700	DIODE.ZENR	MTZJ4.3A	4.3V
D618	iF004600	DIODE	1SS133	
D619	iF004600	DIODE	1SS133	
* IC603	XM356A00	IC	NJM2068LD	
IC604	XB247301	IC	uPC4570HA	
IC605	XB247301	IC	uPC4570HA	
IC606	XB247301	IC	uPC4570HA	
IC607	XB247301	IC	uPC4570HA	
IC608	XG758A00	IC	LC7823N	
IC609	Xi112A00	IC	AK5339	
IC610	XL816A00	IC	YSS223-K	
IC611	XM049A00	IC	TC51832AFL-10	
IC612	XB247301	IC	uPC4570HA	
IC613	XB247301	IC	uPC4570HA	
IC614	XB247301	IC	uPC4570HA	
* IC615	XM359A00	IC	M5238AL	
* IC616	XM359A00	IC	M5238AL	
IC617	XB247301	IC	uPC4570HA	
IC618	XB247301	IC	uPC4570HA	
IC619	XB247301	IC	uPC4570HA	
IC620	XB247301	IC	uPC4570HA	
IC621	XG780A00	IC	AN79N05	
IC622	XA507A00	IC	AN78N05	
IC623	XJ757A00	IC	NJM78L05A-T3	
* IC624	XM569A00	IC	HD6433248A82	
IC625	XF494A00	IC	LB1641	
J831	RD250000	R.CAR.CHP	0Ω	1/10W
L601	VA983600	COIL	220uH(G)	
L602	VA983600	COIL	220uH(G)	
PJ602	VJ696300	JACK.PIN	4P	
PJ603	VJ696300	JACK.PIN	4P	
PJ604	VK421600	JACK.PIN	4P	
* Q601	VD303700	TR	2SC3326 A,B	

* New Parts

DSP P. C. B.

	Schm Ref.	PART NO.	Description		
*	Q602	VD303700	TR	2SC3326 A,B	
*	Q603	VD303700	TR	2SC3326 A,B	
*	Q604	VD303700	TR	2SC3326 A,B	
	Q605	VG721700	TR.DGT	DTA144ES	
	Q606	VH964100	TR.DGT	DTA143ES	
	Q607	iC174020	TR	2SC1740S R,S	
	Q608	iC174020	TR	2SC1740S R,S	
	Q609	VG722000	TR.DGT	DTC144ES	
	Q610	iA093320	TR	2SA933S Q,R	
	R646	HV455100	R.CAR.FP	100Ω	1/4W
	R647	HV455100	R.CAR.FP	100Ω	1/4W
	R655	Vi195700	R.MTL.CHP	2.2KΩ	1/10W
	R656	Vi198200	R.MTL.CHP	22KΩ	1/10W
	R657	Vi199000	R.MTL.CHP	47KΩ	1/10W
	R658	Vi195100	R.MTL.CHP	1.2KΩ	1/10W
	R659	Vi196400	R.MTL.CHP	3.9KΩ	1/10W
*	R660	Vi193500	R.MTL.CHP	270Ω	1/10W
	R661	Vi196600	R.MTL.CHP	4.7KΩ	1/10W
	R662	Vi197000	R.MTL.CHP	6.8KΩ	1/10W
	R663	Vi195700	R.MTL.CHP	2.2KΩ	1/10W
	R664	Vi196600	R.MTL.CHP	4.7KΩ	1/10W
	R665	Vi197000	R.MTL.CHP	6.8KΩ	1/10W
	R666	Vi195700	R.MTL.CHP	2.2KΩ	1/10W
	R667	Vi195100	R.MTL.CHP	1.2KΩ	1/10W
	R668	Vi196400	R.MTL.CHP	3.9KΩ	1/10W
*	R669	Vi193500	R.MTL.CHP	270Ω	1/10W
	R670	Vi199000	R.MTL.CHP	47KΩ	1/10W
	R671	Vi198200	R.MTL.CHP	22KΩ	1/10W
	R672	Vi195700	R.MTL.CHP	2.2KΩ	1/10W
	R673	Vi199000	R.MTL.CHP	47KΩ	1/10W
	R674	Vi199000	R.MTL.CHP	47KΩ	1/10W
	R685	Vi195700	R.MTL.CHP	2.2KΩ	1/10W
	R686	Vi199000	R.MTL.CHP	47KΩ	1/10W
	R687	RD257100	R.CAR.CHP	10KΩ	1/10W
	R688	RD257100	R.CAR.CHP	10KΩ	1/10W
	R689	RD258100	R.CAR.CHP	100KΩ	1/10W
	R690	RD258100	R.CAR.CHP	100KΩ	1/10W
	R691	RD257100	R.CAR.CHP	10KΩ	1/10W
	R692	RD257100	R.CAR.CHP	10KΩ	1/10W
	R693	Vi195700	R.MTL.CHP	2.2KΩ	1/10W
	R694	Vi199000	R.MTL.CHP	47KΩ	1/10W
	R695	Vi197400	R.MTL.CHP	10KΩ	1/10W
	R696	RD258470	R.CAR.CHP	470KΩ	1/10W
	R697	Vi197700	R.MTL.CHP	13KΩ	1/10W
	R698	Vi197400	R.MTL.CHP	10KΩ	1/10W
	R699	Vi197700	R.MTL.CHP	13KΩ	1/10W
	R700	Vi197400	R.MTL.CHP	10KΩ	1/10W
	R701	Vi197700	R.MTL.CHP	13KΩ	1/10W
	R702	RD259100	R.CAR.CHP	1MΩ	1/10W
	R703	RD259100	R.CAR.CHP	1MΩ	1/10W
	R704	Vi197500	R.MTL.CHP	11KΩ	1/10W
	R705	Vi197500	R.MTL.CHP	11KΩ	1/10W
	R706	Vi197500	R.MTL.CHP	11KΩ	1/10W

* New Parts

Schm Ref.	PART NO.	Description		
R707	Vi197500	R.MTL.CHP	11KΩ	1/10W
R708	Vi197500	R.MTL.CHP	11KΩ	1/10W
R709	Vi197500	R.MTL.CHP	11KΩ	1/10W
R710	Vi197500	R.MTL.CHP	11KΩ	1/10W
R711	Vi197500	R.MTL.CHP	11KΩ	1/10W
R712	Vi197500	R.MTL.CHP	11KΩ	1/10W
R713	Vi197500	R.MTL.CHP	11KΩ	1/10W
R717	Vi196800	R.MTL.CHP	5.6KΩ	1/10W
R718	Vi195700	R.MTL.CHP	2.2KΩ	1/10W
R719	RD259100	R.CAR.CHP	1MΩ	1/10W
R720	Vi197200	R.MTL.CHP	8.2KΩ	1/10W
R721	Vi197400	R.MTL.CHP	10KΩ	1/10W
R722	Vi196100	R.MTL.CHP	3.3KΩ	1/10W
R723	RD259100	R.CAR.CHP	1MΩ	1/10W
R724	Vi197400	R.MTL.CHP	10KΩ	1/10W
R725	Vi196800	R.MTL.CHP	5.6KΩ	1/10W
R726	Vi195700	R.MTL.CHP	2.2KΩ	1/10W
R727	Vi197400	R.MTL.CHP	10KΩ	1/10W
R728	Vi196600	R.MTL.CHP	4.7KΩ	1/10W
R729	Vi197700	R.MTL.CHP	13KΩ	1/10W
R730	Vi197400	R.MTL.CHP	10KΩ	1/10W
R731	Vi197400	R.MTL.CHP	10KΩ	1/10W
R732	Vi197500	R.MTL.CHP	11KΩ	1/10W
R733	Vi196600	R.MTL.CHP	4.7KΩ	1/10W
R734	Vi197400	R.MTL.CHP	10KΩ	1/10W
R735	Vi197500	R.MTL.CHP	11KΩ	1/10W
R736	Vi196600	R.MTL.CHP	4.7KΩ	1/10W
R737	Vi197400	R.MTL.CHP	10KΩ	1/10W
R738	HV453220	R.CAR.FP	2.2Ω	1/4W
R748	Vi195900	R.MTL.CHP	2.7KΩ	1/10W
R749	Vi198200	R.MTL.CHP	22KΩ	1/10W
R750	RD256220	R.CAR.CHP	2.2KΩ	1/10W
R751	Vi196100	R.MTL.CHP	3.3KΩ	1/10W
R752	Vi197200	R.MTL.CHP	8.2KΩ	1/10W
R753	Vi195900	R.MTL.CHP	2.7KΩ	1/10W
R754	Vi198200	R.MTL.CHP	22KΩ	1/10W
R755	Vi197400	R.MTL.CHP	10KΩ	1/10W
R756	Vi196600	R.MTL.CHP	4.7KΩ	1/10W
R757	Vi196600	R.MTL.CHP	4.7KΩ	1/10W
R758	Vi197700	R.MTL.CHP	13KΩ	1/10W
R759	Vi197400	R.MTL.CHP	10KΩ	1/10W
R760	Vi197400	R.MTL.CHP	10KΩ	1/10W
R761	Vi197400	R.MTL.CHP	10KΩ	1/10W
R762	Vi197400	R.MTL.CHP	10KΩ	1/10W
R763	Vi197400	R.MTL.CHP	10KΩ	1/10W
R764	Vi196600	R.MTL.CHP	4.7KΩ	1/10W
R765	Vi197400	R.MTL.CHP	10KΩ	1/10W
R766	Vi196600	R.MTL.CHP	4.7KΩ	1/10W
R767	HV453220	R.CAR.FP	2.2Ω	1/4W
R770	Vi197400	R.MTL.CHP	10KΩ	1/10W
R771	Vi197400	R.MTL.CHP	10KΩ	1/10W
R772	Vi192500	R.MTL.CHP	100Ω	1/10W
R773	Vi192500	R.MTL.CHP	100Ω	1/10W

* New Parts

DSP & OPERATION P. C. B.

	Schm Ref.	PART NO.	Description		
	R774	RD254100	R.CAR.CHP	10Ω	1/10W
	R775	RD255220	R.CAR.CHP	220Ω	1/10W
	R776	RD259100	R.CAR.CHP	1MΩ	1/10W
	R777	Vi197200	R.MTL.CHP	8.2KΩ	1/10W
	R778	Vi196400	R.MTL.CHP	3.9KΩ	1/10W
	R779	Vi196400	R.MTL.CHP	3.9KΩ	1/10W
	R780	Vi197200	R.MTL.CHP	8.2KΩ	1/10W
	R781	RD258100	R.CAR.CHP	100KΩ	1/10W
	R782	RD256330	R.CAR.CHP	3.3KΩ	1/10W
	R783	HL314680	R.MTL.OXD	68Ω	1W
	R784	RD257100	R.CAR.CHP	10KΩ	1/10W
	R785	RD257100	R.CAR.CHP	10KΩ	1/10W
*	R786	RD258620	R.CAR.CHP	620KΩ	1/10W
	R787	HV453220	R.CAR.FP	2.2Ω	1/4W
	R789	RD256270	R.CAR.CHP	2.7KΩ	1/10W
	R792	RD257560	R.CAR.CHP	56KΩ	1/10W
	R793	RD257100	R.CAR.CHP	10KΩ	1/10W
	R794	RD257560	R.CAR.CHP	56KΩ	1/10W
	R795	RD257100	R.CAR.CHP	10KΩ	1/10W
	R796	RD256470	R.CAR.CHP	4.7KΩ	1/10W
	R797	HV453220	R.CAR.FP	2.2Ω	1/4W
	R798	HV453220	R.CAR.FP	2.2Ω	1/4W
	R799	HV453680	R.CAR.FP	6.8Ω	1/4W
	R800	RD256100	R.CAR.CHP	1KΩ	1/10W
	R801	RD256560	R.CAR.CHP	5.6KΩ	1/10W
	R802	RD256270	R.CAR.CHP	2.7KΩ	1/10W
	R803	RD256560	R.CAR.CHP	5.6KΩ	1/10W
	R805	RD258100	R.CAR.CHP	100KΩ	1/10W
	R806	RD257330	R.CAR.CHP	33KΩ	1/10W
	R807	RD259100	R.CAR.CHP	1MΩ	1/10W
	R815	Vi197400	R.MTL.CHP	10KΩ	1/10W
	R816	Vi197400	R.MTL.CHP	10KΩ	1/10W
	R817	Vi193300	R.MTL.CHP	220Ω	1/10W
	R818	Vi193300	R.MTL.CHP	220Ω	1/10W
	R819	Vi198400	R.MTL.CHP	27KΩ	1/10W
	R821	RD255150	R.CAR.CHP	150Ω	1/10W
	R822	RD257100	R.CAR.CHP	10KΩ	1/10W
	R823	RD257100	R.CAR.CHP	10KΩ	1/10W
	R824	RD257100	R.CAR.CHP	10KΩ	1/10W
	R825	RD257100	R.CAR.CHP	10KΩ	1/10W
	R826	RD257100	R.CAR.CHP	10KΩ	1/10W
	R827	RD257100	R.CAR.CHP	10KΩ	1/10W
	R828	RD255470	R.CAR.CHP	470Ω	1/10W
	R829	RD255470	R.CAR.CHP	470Ω	1/10W
	R830	RD255470	R.CAR.CHP	470Ω	1/10W
	R831	RD255220	R.CAR.CHP	220Ω	1/10W
	R832	RD255220	R.CAR.CHP	220Ω	1/10W
	R833	RD255220	R.CAR.CHP	220Ω	1/10W
	R834	RD255220	R.CAR.CHP	220Ω	1/10W
	R835	RD259220	R.CAR.CHP	2.2MΩ	1/10W
	R836	RD259220	R.CAR.CHP	2.2MΩ	1/10W
	XL601	VK175200	RSNR.CE	11.28MHz	
	XL602	Vi951800	RSNR.CE	20MHz	

⋆ New Parts

	Schm Ref.	PART NO.	Description		
		BB069510	GND.MTL	No.6951	
		VB966900	CN	IMSA-6024	
*		VQ142300	P.C.B.	OPERATION(UCRAB)	
*		VQ142400	P.C.B.	OPERATION(G)	
	CB901	VB858900	CN.BS.PIN	PH L-TYPE 10P SE	
	CB902	LB918020	CN.BS.PIN	XH i-TYPE 2P TE	
	CB903	VD004500	CN.BS.PIN	PH i-TYPE 2P TE	
	CB904	VD004600	CN.BS.PIN	PH i-TYPE 3P TE	
	CB905	VD004600	CN.BS.PIN	PH i-TYPE 3P TE	
	C901	FG213100	C.CE	1000pF	50V
	C902	Vi845600	C.EL	47uF	50V
	C903	Vi845600	C.EL	47uF	50V
	C904	VG722100	C.EL	1uF	50V
	C905	VJ599100	C.CE.TUBLR	0.1uF	50V
	C906	FG213100	C.CE	1000pF	50V
	C907	Vi845000	C.EL	2.2uF	50V
	C908	Vi845000	C.EL	2.2uF	50V
	C909	Vi845600	C.EL	47uF	50V
	C910	Vi845000	C.EL	2.2uF	50V
	C911	Vi845000	C.EL	2.2uF	50V
	C912	VF466900	C.CE.TUBLR	470pF	50V
	C913	VJ599100	C.CE.TUBLR	0.1uF	50V
	C914	VF466900	C.CE.TUBLR	470pF	50V
	C915	VJ599100	C.CE.TUBLR	0.1uF	50V
	C916	Vi845000	C.EL	2.2uF	50V
	C917	FU451100	C.MICA	10pF	500V
	C918	FU451100	C.MICA	10pF	500V
	C919	Vi845600	C.EL	47uF	50V
	C920	Vi845600	C.EL	47uF	50V
	C921	FU451100	C.MICA	10pF	500V
	C922	FU451100	C.MICA	10pF	500V
	C923	Vi845000	C.EL	2.2uF	50V
	C924	FU451100	C.MICA	10pF	500V
	C925	Vi845600	C.EL	47uF	50V
	C926	Vi845600	C.EL	47uF	50V
	C927	FU451100	C.MICA	10pF	500V
	C928	Vi845000	C.EL	2.2uF	50V
	C929	VJ599100	C.CE.TUBLR	0.1uF	50V
	C930	Vi845200	C.EL	4.7uF	50V
	C931	Vi846000	C.EL	22uF	63V
	C932	Vi846000	C.EL	22uF	63V
	C933	Vi845200	C.EL	4.7uF	50V
	C934	Vi846000	C.EL	22uF	63V
	C935	UA655100	C.MYLAR	0.1uF	50V
	C936	FU351220	C.MICA	22pF	500V
	C937	FU351220	C.MICA	22pF	500V
	C938	UA655100	C.MYLAR	0.1uF	50V
	C939	Vi846000	C.EL	22uF	63V
	C940	FU351220	C.MICA	22pF	500V
	C941	Vi845900	C.EL	10uF	63V

⋆ New Parts

OPERATION P. C. B.

	Schm Ref.	PART NO.	Description	
	C942	UA654220	C.MYLAR	0.022uF 50V
	C943	UA654220	C.MYLAR	0.022uF 50V
	C944	Vi845900	C.EL	10uF 63V
	C945	FU351220	C.MICA	22pF 500V
	C946	VJ599100	C.CE.TUBLR	0.1uF 50V
	C947	VJ599100	C.CE.TUBLR	0.1uF 50V
	D901	Vi013600	LED(re)	SLR-34VC3H3(G)
	D902	iF004600	DIODE	1SS133
	D903	iF004600	DIODE	1SS133
	D904	iF004600	DIODE	1SS133
	D905	iF004600	DIODE	1SS133
	D906	iF004600	DIODE	1SS133
	D907	iF004600	DIODE	1SS133
*	D908	VP976900	LED(or)	SLN-210DCT12
*	D909	VP976900	LED(or)	SLN-210DCT12
*	D910	VP976900	LED(or)	SLN-210DCT12
*	D911	VP976900	LED(or)	SLN-210DCT12
*	D912	VP976900	LED(or)	SLN-210DCT12
*	D913	VP976900	LED(or)	SLN-210DCT12
*	D914	VP976900	LED(or)	SLN-210DCT12
*	D915	VP976900	LED(or)	SLN-210DCT12
*	D916	VP976900	LED(or)	SLN-210DCT12
*	D917	VP976900	LED(or)	SLN-210DCT12
*	D918	VP976900	LED(or)	SLN-210DCT12
*	D919	VP976900	LED(or)	SLN-210DCT12
	IC901	XB247301	IC	uPC4570HA
	IC902	XB247301	IC	uPC4570HA
	IC903	XB247301	IC	uPC4570HA
*	IC904	XM356A00	IC	NJM2068LD
	IC905	XB247301	IC	uPC4570HA
	IC906	iR023820	IC	uPD74HC238C
	JK901	VJ114000	JACK.PHONE	M1659
*	JK902	VP594600	CN.DIN	1P, S
*	PJ901	VP594700	JACK.PIN	3P
*	Q901	VP602400	TR	2SC4038 Q,R,S,E
*	Q902	VP602500	TR.DGT	DTC143XL
*	Q903	VP602500	TR.DGT	DTC143XL
*	Q904	VP602400	TR	2SC4038 Q,R,S,E
*	Q905	VP602400	TR	2SC4038 Q,R,S,E
*	Q906	VP602400	TR	2SC4038 Q,R,S,E
*	Q907	VP602400	TR	2SC4038 Q,R,S,E
*	Q908	VP602400	TR	2SC4038 Q,R,S,E
	R901	HV453330	R.CAR.FP	3.3Ω 1/4W
	R902	HV453330	R.CAR.FP	3.3Ω 1/4W
	R904	HV455100	R.CAR.FP	100Ω 1/4W
	R905	HV455100	R.CAR.FP	100Ω 1/4W
	SW901	VG392900	SW.TACT	SKHVAA
	SW902	VG392900	SW.TACT	SKHVAA
	SW903	VG392900	SW.TACT	SKHVAA
	SW904	VG392900	SW.TACT	SKHVAA
	SW905	VG392900	SW.TACT	SKHVAA
	SW906	VG392900	SW.TACT	SKHVAA
	SW907	VG392900	SW.TACT	SKHVAA

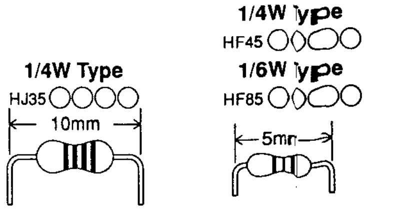
* New Parts

	Schm Ref.	PART NO.	Description	
	SW908	VG392900	SW.TACT	SKHVAA
	SW909	VG392900	SW.TACT	SKHVAA
	SW910	VG392900	SW.TACT	SKHVAA
	SW911	VG392900	SW.TACT	SKHVAA
	SW912	VG392900	SW.TACT	SKHVAA
	U901	VF926500	L.DTCT	GP1U501X
	VR901	VJ781500	VR.MTR	Y100KΩx7
*	VR902	VP825400	VR	16KΩ
*	VR903	VP825600	VR	20KΩ
*	VR904	VP825500	VR	MN30KΩ
		BB071360	SCR.TERM	8.3x13

* New Parts

Parts List for Carbon Resistors

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	*	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	*	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	*
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	*
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



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